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Microbial Pattern in Amniotic Fluid from Women with Premature Rupture of Membranes and Meconium-Stained Fluid

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Abstract: Intra-amniotic infection (IAI), also known as chorioamnionitis, is a major cause of maternal and neonatal infection that occurs during pregnancy, labor and delivery, or in the postpartum period. Conditions such as meconium-stained amniotic fluid (MSAF) and premature rupture of membranes (PROMs) are recognized risk factors for amniotic fluid infection. This study identifies the microbial patterns in the amniotic fluid of women with PROMs and MSAF to determine the presence and types of bacterial growth. It also identifies trends in antibiotic use through descriptive statistics. Conducted as a descriptive observational study with prospective data collection, this research included maternal patients with PROMs lasting more than 12 h and those with MSAF, along with their infants. Of 30 cultured amniotic fluid samples, bacterial growth was observed in 13 cases, with *Escherichia coli* being the most prevalent (40%). Infants born with PROMs accompanied by MSAF were 5.5 days, significantly longer than those born with PROMs alone (3.19 days) or MSAF alone (3.91 days), with a significant difference between groups (p = 0.003). In addition, *Escherichia coli* isolates in this study are resistant to ceftriaxone, a third-generation cephalosporin antibiotic. Understanding these microbial patterns is critical for guiding clinical decisions, particularly in managing the risk of infection in pregnant women with PROMs and MSAF and ensuring better outcomes for both mothers and newborns.

Keywords: infections; pathogenicity; amniotic fluid; fetal membranes; premature rupture; infant; newborn; risk

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1. Introduction

Infectious diseases are among the leading complications, responsible for approximately 75% of all maternal deaths [1]. In East Java Province, maternal mortality due to infections is expected to increase from 0.38% in 2019 to 1.42% in 2020 [2]. Infections during pregnancy significantly increase the risk of fetal infection, which can occur in utero, during labor, or postnatally [3]. Intra-amniotic infection (IAI), also known as chorioamnionitis, is a prominent cause of such infections. IAI is characterized by acute infection and inflammation of the chorionic and amnionic layers of the fetal membrane, amniotic fluid, and placental deciduas [4]. Amniotic fluid plays a critical role in fetal development, protecting the fetus from mechanical trauma and infection due to its antibacterial properties. It also provides the necessary environment for the growth and development of fetal organ systems, including the musculoskeletal, digestive, and respiratory systems [5].

Risk factors for IAI include the presence of meconium in the amniotic fluid and premature rupture of membranes (PROMs) [6]. Meconium (the fetal fecal matter)-containing amniotic fluid occurs in approximately 1 in 10 births [7–9]. It is crucial to recognize that amniotic fluid can contain ammonium when the fetus experiences stress [10]. Postnatal management must focus on promptly clearing meconium from the baby's airway, as low Apgar scores are directly linked to a significantly higher risk of mortality [1,10,11]. The presence of meconium in the amniotic fluid may facilitate bacterial growth by acting as a growth medium, potentially inhibiting the natural bacteriostatic properties of the fluid or compromising immune defense mechanisms, thereby increasing the risk of IAI [12]. This infection typically occurs due to the ascent of microorganisms from the lower genital tract [4]. Studies show that common vaginal bacteria, such as Ureaplasma urealyticum, *Escherichia coli*, and *Streptococcus agalactiae*, are often found in the amniotic fluid of women with IAI [13]. Pregnant women with meconium-stained amniotic fluid (MSAF) have a higher prevalence of positive amniotic fluid cultures and an increased risk of neonatal sepsis and mortality [14]. Therefore, antibiotic therapy is recommended for both mothers and newborns during delivery in cases of MSAF and premature rupture of membranes (PROMs) [7,15].

Judicious use of antibiotics in newborns is imperative to prevent antibiotic resistance. According to Darwin's theory of evolution, natural selection favors traits that enhance survival, leading to antibiotic resistance in bacteria [16]. Identifying the specific bacteria causing an infection guides appropriate antibiotic use, preventing overuse of broad-spectrum antibiotics and minimizing resistance risk. Meconium itself is not a risk factor for infection [1,17,18]; antibiotics should only be administered when there is clear evidence of infection [19]. A review reported that narrow or broad-spectrum antibiotics have similar efficacy in endometritis, febrile morbidity, wound infection, and urinary tract infection in mothers after postoperative cesarean sections. However, there are no data available on infant outcomes [20]. Overuse in newborns can cause serious complications like bronchopulmonary dysplasia [21] and dysbiosis [22,23], which disrupt immune function and increase the risk of metabolic disorders. This study highlights the concerning trend of high broad-spectrum antibiotic use in mothers and newborns, emphasizing the need for evidence-based clinical practice to use antibiotics only for confirmed infections.

Currently, in East Java, especially in Surabaya, there is a lack of data regarding microbial patterns and antibiotic use in patients with MSAF and PROM, which pose a potential risk of infection to both mothers and newborns. This study aims to determine the microbial patterns and antimicrobial susceptibilities in the amniotic fluid of mothers delivering with MSAF and PROMs at a public referral hospital in Surabaya and provide data on maternal and neonatal outcomes after delivery. This surveillance study identifies trends in antibiotic use through descriptive statistics. A correlation analysis was not performed as the study was not designed to identify infection risk factors.

2. Results

The predominant age group in this study was 26 to 35 years, with the youngest participant being 24 and the oldest 43. The majority were term pregnancies. There were three cases of fetal malpresentation. Preterm premature rupture of membranes (PROMs) was observed in 17 cases, while meconium-stained amniotic fluid (MSAF) occurred in 11 cases. In addition, there were two cases of PROMs with MSAF. Table 1 reports the characteristics of the samples.

Table 1. Demographic characteristics.

Characteristics (*N* = 90)		N (%)
Maternal Characteristics (*N* = 30)		
Age (Years)	17–25	3 (10)
	26–35	21 (70)
	>35	6 (20)
Gestational Age	Preterm	3 (10)
	Early term	9 (30)
	Full term	13 (43)
	Late term	5 (17)
Parity	Nulliparous	14 (47)
	Multipara	16 (53)
Fetal Malpresentation	Yes	3 (10)
	No	27 (90)
Amniotic Condition	PROMs [1] > 12 h	17 (57)
	MSAF [2]	11 (37)
	PROMs with MSAF	2 (6)
Neonates Characteristics (*N* = 60)		
Gender	Male	37 (62)
Weight	Low	5 (8)
	Normal	55 (92)
Amniotic Condition	MSAF [2]	41 (68)
CRP [3] (mg/L)	>5	7 (12)
Leukocyte ($10^3/\mu L$)	9.00–34.00	60 (100)

[1] premature rupture of membranes; [2] meconium-stained amniotic fluid; [3] C-reactive protein.

Of the 30 amniotic fluid samples analyzed, bacterial growth was identified in 13 samples (43%). Gram-negative bacteria were predominant (Figure 1), accounting for 11 positive cultures (73.33%), with *Escherichia coli* being the most commonly isolated, found in six samples (40%). In addition, extended-spectrum beta-lactamase (ESBL) production in *Escherichia coli* was identified in two samples (13.33%), followed by *Klebsiella pneumoniae* in two samples (13.33%) and *Enterobacter* spp. in one sample (6.67%). Gram-positive bacteria were isolated in four cases, including *Staphylococcus hemolyticus* (13.37%), *Staphylococcus epidermidis* (13.37%), *Streptococcus beta-hemolyticus* (13.37%), and *Enterococcus* spp. (13.37%). Of note, two samples with MSAF showed polymicrobial growth with the presence of *Escherichia coli* and *Klebsiella pneumoniae*. ESBL production in *Escherichia coli* were identified in specimens with Grade II and Grade III MSAF. Laboratory results indicated a significant immune response in both neonates and mothers, particularly in cases involving Gram-negative bacteria such as *Escherichia coli* and *Klebsiella pneumoniae*. Neonates with MSAF, especially those with concurrent PROMs, had significantly elevated CRP levels, suggesting severe inflammation or sepsis. Across all infections, neonates and mothers had elevated leukocyte and neutrophil counts, reflecting a robust inflammatory response. Extended-spectrum beta-lactamase (ESBL) production in *Escherichia coli* in PROMs with MSAF cases further underscores the severity of infection in these scenarios. Data are presented in Tables 2 and 3. Further details on the distribution of bacterial growth and the prevalence of Gram-negative bacteria can be seen in Figure 2, which illustrates the defined daily dose per 100 bed-days of antibiotics in neonates.

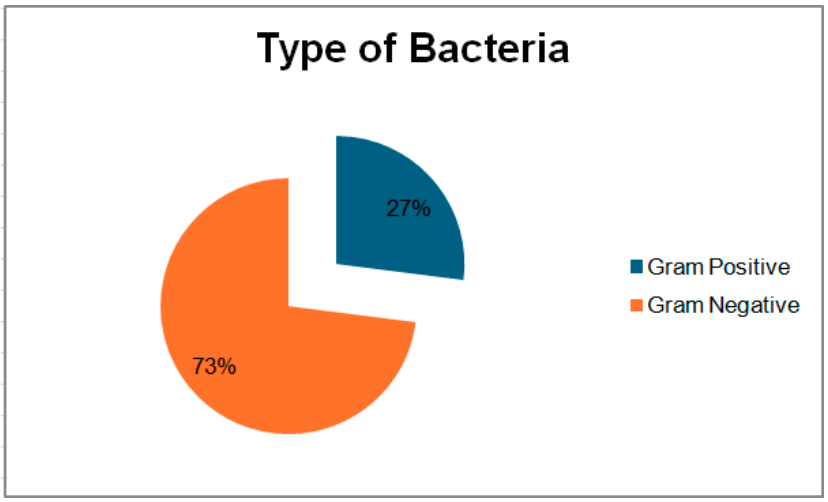

Figure 1. Types of bacteria in positive isolates.

Table 2. Laboratory findings and microorganism profiles in maternal samples.

Microorganism	Leukocytes (10^3/µL)			Neutrophils (%)		
	PROMs [1]	MSAF [2]	PROMs [1]–MSAF [2]	PROMs [1]	MSAF [2]	PROMs [1]–MSAF [2]
Gram-positive						
Staphylococcus haemolyticus	14.76	-	-	83.40	-	-
Streptococcus beta haemolyticus	17.88	-	-	91.40	-	-
fStaphylococcus epidermis	-	20.57	-	-	90.70	-
Gram-negative						
Enterococcus spp.	15.60	-	-	90.50	-	-
Enterobacter spp.	-	15.60	-	-	90.50	-
Escherichia coli	15.19	12.24	-	93.80	89.60	-
	-	17.58	-	-	92.02	-
	-	17.90	-	-	91.20	-
Escherichia coli and *Klebsiella pneumoniae*	-	10.67	-	-	80.50	-
	-	14.02	-	-	88.60	-
Escherichia coli ESBL	-	-	15.52	-	-	85.50
Escherichia coli ESBL	-	-	11.11	-	-	72.90

[1] premature rupture of membranes; [2] meconium-stained amniotic fluid.

Table 3. Laboratory findings and microorganism profiles in neonates.

Microorganism	CRP [1] (mg/L)			Leukocytes (10^3/µL)			Neutrophils (%)		
	PROMs [2]	MSAF [3]	PROMs [2]–MSAF [3]	PROMs [2]	MSAF [3]	PROMs [2]–MSAF [3]	PROMs [2]	MSAF [3]	PROMs [2]–MSAF [3]
Gram-positive									
Staphylococcus haemolyticus	-	-	-	-	-	-	-	-	-
Streptococcus beta haemolyticus	<5	-	-	22.06	-	-	73.10	-	-
Staphylococcus epidermis	-	<5	-	-	33.23	-	-	75.40	-
Gram-negative									
Enterococcus spp.	<5	-	-	18.31	-	-	75.20	-	-
Enterobacter spp.	-	16.00	-	-	8.52	-	-	76.90	-
Escherichia coli	<5	-	-	18.93	14.58	-	79.60	67.20	-
	-	15.00	-	-	24.22	-	-	76.90	-
	-	-	-	-	22.49	-	-	79.70	-
Escherichia coli and *Klebsiella pneumoniae*	-	13.00	-	-	19.85	-	-	85.10	-
	-	12.50	-	-	20.58	-	-	70.30	-
Escherichia coli ESBL	-	-	25.00	-	-	14.87	-	-	85.60
Escherichia coli ESBL	-	-	7.50	-	-	-	-	-	-

[1] C-reactive protein; [2] premature rupture of membranes; [3] meconium-stained amniotic fluid.

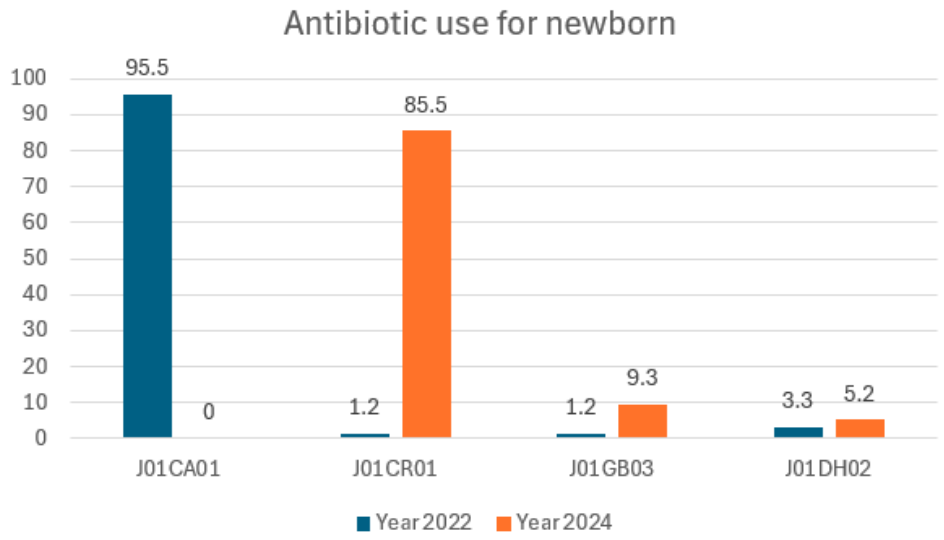

Figure 2. Defined daily dose per 100 bed-days antibiotics in neonates.

3. Discussion

Antibiotics are used against bacteria; therefore, aside from indication, antibiotic choices are associated with the type of bacteria and its sensitivity to antibiotics. A systematic review of 3728 pregnant women diagnosed with premature rupture of membranes (PROMs) in China identified 1706 microbial isolates. The results showed a predominance of Gram-positive bacteria (54%), followed by Gram-negative bacteria (23%). The most commonly isolated bacteria were *Staphylococcus* (*n* = 643), *Escherichia coli* (*n* = 204), *Enterococcus* (*n* = 99), *Lactobacillus* (*n* = 78), *Enterobacter* (*n* = 61), and *Streptococcus* (*n* = 60) [24]. In contrast, a study by R. Romero et al. in Detroit, USA, involving 59 women with singleton pregnancies diagnosed with PROMs found that *Sneathia amnii* (28.5%) and *Ureaplasma* spp. (14.3%) were the most common bacterial isolates from amniotic fluid cultures. A cross-sectional study conducted at the Hospital of Sótero del Río in 108 pregnant women divided into two groups—those with meconium-stained amniotic fluid (MSAF) (*n* = 64) and those with clear amniotic fluid (*n* = 42)—showed that Gram-negative bacteria were the most common microorganisms (*n* = 4), followed by Gram-positive bacteria (*n* = 2) and *Mycoplasma hominis* (*n* = 1) [25]. Similarly, a study by Rini in Semarang, Indonesia, found that *Escherichia coli* was the most commonly isolated bacterium in MSAF cases, with 25.7% in vaginal deliveries and 5.7% in cesarean deliveries [26]. The differences in microbial patterns observed between this study and others conducted in different geographical locations may be attributed to several factors, including genetic differences influencing immune responses, regional variations in normal microflora, diet, environmental factors, and hygiene practices [27,28].

This study examined cases of PROMs lasting more than 12 h. According to a study by Yin H et al. of 102 women with singleton pregnancies and PROMs, the incidence of intra-amniotic infection (IAI) and neonatal sepsis increased with the duration of membrane rupture. The microbial diversity in the amniotic fluid increased significantly at 12 h after rupture, with further increases noted at 24 h. These findings suggest that microbes can invade the placenta within 12 h and reach the amniotic cavity by 24 h, highlighting the need to consider ascending pathways of infection in PROMs cases [29]. Furthermore, a study at Cipto Mangunkusumo Hospital in Jakarta showed that the risk of neonatal sepsis (Odds Ratio) was significantly higher in cases where PROMs lasted ≥18 h before hospital admission (OR 3.08), ≥15 h during hospitalization (OR 7.32), and ≥48 h before delivery (OR 5.77) [30]. In a prospective cohort study of 200 pregnant women with PROMs whose neonates were evaluated for sepsis after birth, the major outcomes of birth asphyxia (8%), neonatal sepsis (4%), NICU admission (26%), and neonatal mortality (2%) were analyzed

in relation to time from PROMs. Neonatal sepsis rates increase after 37 h of PROMs latency [31].

Table 4 shows that the incidence of premature rupture of membranes (PROMs) was higher than that of meconium-stained amniotic fluid (MSAF), with 17 cases compared to seven cases. Similarly, a 2017 study at RSUD Ungaran reported that PROMs was one of the most common complications, accounting for 43.1% of labor-related problems [32]. Table 3 shows that when comparing amniotic fluid status with APGAR scores at 1 and 5 min, the mean APGAR scores were below 7 for all groups, with the lowest scores observed in the MSAF group. However, analysis showed no significant differences in APGAR scores between the PROMs, MSAF, and PROMs with MSAF groups ($p = 0.687$). These results are consistent with a study from Karsa Husada Hospital, where no significant differences were found between APGAR scores and membrane conditions ($p = 0.638$) [33]. Conversely, a study by Masood et al. reported that 77.4% of newborns with MSAF had an APGAR score less than 6, with a significant difference compared to those born with clear amniotic fluid ($p = 0.002$) [34]. To provide additional context on antibiotic management in neonates, Table 5 presents the defined daily dose per 100 bed-days of antibiotics.

Table 4. Clinical outcomes based on amniotic fluid conditions in newborns.

Clinical Outcomes	PROMs [2] (*N* = 17)	MSAF [3] (*N* = 11)	PROMs [2]–MSAF [3] (*N* = 2)
Length of Stay (days) $p = 0.03$			
1–3	10	3	0
>3	6	8	2
APGAR [1] Score $p = 0.687$			
First minute	5.4 ± 2.32	5.6 ± 2.33	4 ± 4.24
Fifth minute	6.4 ± 2.32	6.6 ± 2.33	5 ± 4.24
Asphyxia	6	4	0
Meconium Aspiration Syndrome	0	0	1
Weight (kg)	3.1 ± 0.40	3.2 ± 0.39	3.4 ± 0.14
NICU admission	0	0	0

[1] APGAR: Appearance, Pulse, Grimace, Activity, and Respiration; [2] premature rupture of membranes; [3] meconium-stained amniotic fluid.

Table 5. Defined daily dose per 100 bed-days antibiotics in neonates.

AWaRe [1]	Name	ATC [2]	Year 2022	Year 2024
Access	Ampicillin	J01CA01	4.19 (95.5)	
Access	Ampicillin/sulbactam	J01CR01	0.05 (1.2)	3.14 (85.5)
Access	Gentamicin	J01GB03	0.05 (1.2)	0.34 (9.3)
Watch	Meropenem	J01DH02	0.14 (3.3)	0.19 (5.2)
	Total		4.38 (100)	3.67 (100)

[1] The WHO AWaRe classification. [2] Anatomical Therapeutic Chemical (a drug classification system used to categorize medications).

The mean length of hospital stay for infants born with PROMs and MSAF was 5.5 days, significantly longer than those with PROMs alone (3.19 days) or MSAF alone (3.91 days), with a significant difference between groups ($p = 0.003$). PROMs and MSAF are recognized risk factors for neonatal infection. In the case of MSAF, the prolonged length of stay can be attributed to the need for respiratory support and the risk of meconium aspiration syndrome (MAS) [35,36]. In addition, PROMs and MSAF are risk factors for early-onset neonatal sepsis (EOS), which may also contribute to prolonged hospital stay [37]. Regarding gestational age, no significant differences in APGAR scores or length of hospital stay were

observed between different gestational age groups in this study. This result is in contrast to the findings of Tavares et al., who showed a significant difference in APGAR scores between different gestational age groups ($p = 0.021$) [38].

In this study, Gram-negative bacterial isolates showed the highest antibiotic susceptibility to amoxicillin–clavulanic acid, piperacillin–tazobactam, amikacin, chloramphenicol, and meropenem, all with 100% susceptibility (11/11). Ampicillin–sulbactam, ceftazidime, and ciprofloxacin followed with 91% sensitivity (10/11), and cefotaxime, cefepime, ceftriaxone, and gentamicin each had 82% sensitivity (9/11). Ampicillin had a slightly lower sensitivity of 73% (8/11). For Gram-positive isolates, antibiotics with 100% sensitivity included chloramphenicol, erythromycin, levofloxacin, linezolid (all 4/4), doxycycline, azithromycin, ciprofloxacin, clindamycin (all 3/3), ampicillin, cefoxitin, trimethoprim–sulfamethoxazole, gentamicin (all 2/2), and cefotaxime, cefepime, ceftriaxone, and teicoplanin (all 1/1). Zeng et al. reported similar findings in cases of PROMs, where Staphylococcus isolates were resistant to most penicillins except oxacillin, but were susceptible to first- and second-generation cephalosporins and aztreonam [25]. In addition, a study conducted at RSUD Saiful Anwar Malang on mothers with PROMs found that coagulase-negative staphylococci were most sensitive to amoxicillin–clavulanic acid, fosfomycin, and amikacin [37]. *Escherichia coli* in this study also showed high susceptibility to amoxicillin–clavulanic acid, which is consistent with our findings.

Antibiotic surveillance raises the alarm about the inappropriate use of antibiotics to manage the risk of infection in babies born with meconium-stained amniotic fluid [18]. The use of broad-spectrum antibiotics is increasing, pediatricians are prescribing ampicillin–sulbactam instead of ampicillin, and the use of meropenem is increasing from 0.14 to 0.19 DDD per 100 bed-days. This study reports on the incidence of ESBL bacteria in two out of 11 isolates. The Indonesian regulation proposed that physicians consult the antibiotic stewardship team for antibiotics in the Reserve category; however, meropenem is today in the Watch category and ampicillin/sulbactam is in the Access category.

As reported in the Section 2, only 43% of isolates grew, which is a limitation of this study. These microbiological examinations were performed because prescribers preferred broad-spectrum antibiotics to narrow-spectrum antibiotics. These microbiological findings will encourage prescribers to use narrow-spectrum antibiotics.

4. Materials and Methods

This study is a descriptive observational study with prospective data collection conducted in maternal patients with premature rupture of membranes (PROMs) for more than 12 h and meconium-stained amniotic fluid (MSAF) and their infants at a 400-bed public referral hospital in Surabaya. Specimens were collected in the delivery and operating rooms, with additional data collection in the maternal and neonatal care units.

A total of 30 mothers and their newborns were included in this study after giving informed consent. An antibiotic sensitivity test for the amniotic fluid began with a gynecologist collecting 20 to 30 mL immediately after the uterus was opened during labor. The gynecologist collected the specimen in a sterile area during the incision. It was immediately sealed, placed in a padded envelope, and sent to the lab. If the microbiology test showed bacterial growth that looked like contamination, the microbiologist ruled it out and considered it sterile. The viability of microorganisms was maintained during transport, and the fluid was cultured for growth. Sensitivity testing was performed using automated systems (VITEK). Data on antibiotic use and other relevant information were extracted from the patients' medical records. Data were analyzed using Microsoft Excel and SPSS 29.0 software, and the results are presented in tables as descriptive analyses.

5. Conclusions

Ampicillin and ampicillin–sulbactam are associated with good outcomes in mothers and newborns. Gynecologists are encouraged to prescribe the narrow-spectrum antibiotic ampicillin over the broad-spectrum ampicillin–sulbactam. The use of broad-spectrum antibiotics shows a yearly increasing trend. An antibiotic prescribing algorithm is needed to control antibiotic use and ensure effective antibiotic stewardship.

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Informed Consent Statement: Patient consent was waived due to the nature of the data collection and use of aggregate data. The data have been combined and summarized so that individual participants cannot be identified.

Data Availability Statement: Data are available on request.

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Conflicts of Interest: The authors declare no conflicts of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

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In 202[illegible]e SDG Publishers Compact was launched to promote informative and inspirational published content that will propel us towards achieving the SDGs. In 2021, MDPI became a signatory of the SDG

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Interests: dopamine; mesocorticolimbic system; drug addiction; ethanol; food reward; microdialysis

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Interests: microwave-assisted organic chemistry and scale-up; “Store Operated Calcium Entry” inhibitors (Orai1) for cancer via Délikine program inhibitors; mitochondrial ion channel inhibitors for cancer; protein kinase (PKs) inhibitors for CNS (Alzheimer’s disease and Down syndrome) via Leucettine program inhibitors; fluorescence probes for studies of molecular mechanisms in cancer biology
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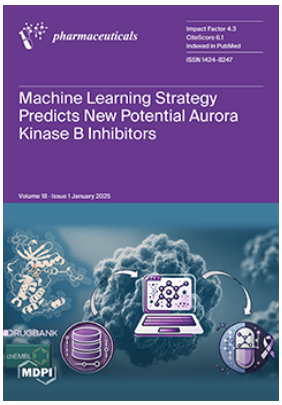

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Critical Appraisal of Pharmaceutical Therapy in Diabetic Cardiomyopathy—Challenges and Prospectives (/1424-8247/18/1/134)

by **Elina Khattab**, **Michaelia Kyriakou**, **Elena Leonidou**, **Stefanos Sokratous**, **Angeliki Mouzarou**, **Michael M. Myrianthefs** and **Nikolaos P. E. Kadoglou**

Pharmaceuticals **2025**, *18*(1), 134; **https://doi.org/10.3390/ph18010134 (https://doi.org/10.3390/ph18010134)** - 20 Jan 2025

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Abstract Diabetes mellitus (DM) is a multifaceted disorder with a pandemic spread and a remarkable burden of cardiovascular mortality and morbidity. Diabetic cardiomyopathy (DBCM) has been increasingly recognized as the development of cardiac dysfunction, which is accompanied by heart failure (HF) symptoms in the **[...] Read more.**

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Molecular Mechanisms Underlying Neuroinflammation Intervention with Medicinal Plants: A Critical and Narrative Review of the Current Literature (/1424-8247/18/1/133)

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Pharmaceuticals **2025**, *18*(1), 133; **https://doi.org/10.3390/ph18010133 (https://doi.org/10.3390/ph18010133)** - 20 Jan 2025

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Abstract Neuroinflammation is a key factor in the progression of neurodegenerative diseases, driven by the dysregulation of molecular pathways and activation of the brain's immune system, resulting in the release of

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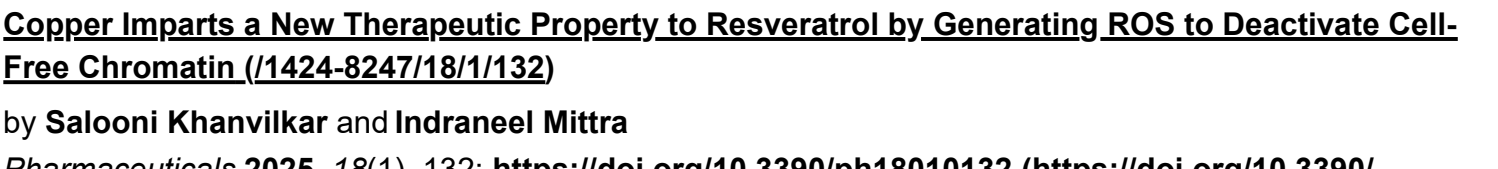

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Copper Imparts a New Therapeutic Property to Resveratrol by Generating ROS to Deactivate Cell-Free Chromatin (/1424-8247/18/1/132)

by **Salooni Khanvilkar** and **Indraneel Mittra**

Pharmaceuticals **2025**, *18*(1), 132; **https://doi.org/10.3390/ph18010132 (https://doi.org/10.3390/ph18010132)** - 20 Jan 2025

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Abstract Resveratrol, a bioactive phytoalexin, has been extensively studied as a pharmaceutical and nutraceutical candidate for the treatment of various diseases. Although its therapeutic effects have been largely attributed to its anti-oxidant properties, its underlying mechanisms and dose dependency are not well understood. Recent **[...] Read more.**

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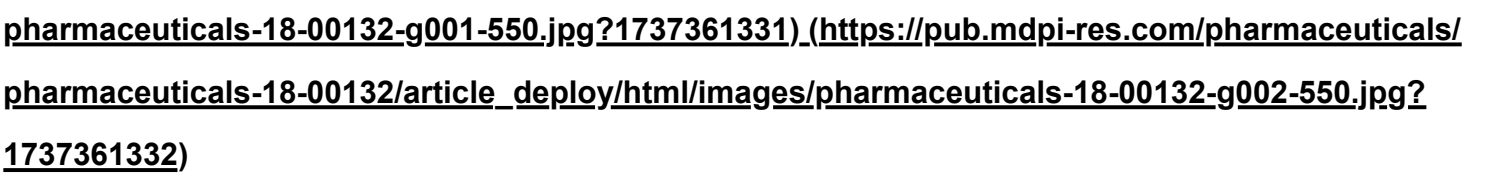

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p97 Inhibitors Possessing Antiviral Activity Against SARS-CoV-2 and Low Cytotoxicity (/1424-8247/18/1/131)

by **Rui Ding**, **Tiffany C. Edwards**, **Prithwish Goswami**, **Daniel J. Wilson**, **Christine D. Dreis**, **Yihong Ye**, **Robert T. Geraghty** and **Liqiang Chen**

Pharmaceuticals **2025**, *18*(1), 131; **https://doi.org/10.3390/ph18010131 (https://doi.org/10.3390/ph18010131)** - 19 Jan 2025

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Abstract Background: p97 (also known as valosin-containing protein, VCP) is a member of the AAA+ ATPase family and is intimately associated with protein quality control and homeostasis regulation. Therefore, pharmaceutical inhibition of p97 has been actively pursued as an anticancer strategy. Recently, p97 has **[...] Read more.**

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Uncovering Psychedelics: From Neural Circuits to Therapeutic Applications (/1424-8247/18/1/130)

by **Alice Melani**, **Marco Bonaso**, **Letizia Biso**, **Benedetta Zucchini**, **Ciro Conversano** and **Marco Scarselli**

Pharmaceuticals **2025**, *18*(1), 130; **https://doi.org/10.3390/ph18010130 (https://doi.org/10.3390/ph18010130)** - 19 Jan 2025

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Abstract Psychedelics, historically celebrated for their cultural and spiritual significance, have emerged as potential breakthrough therapeutic agents due to their profound effects on consciousness, emotional processing, mood, and neural plasticity. This review explores the mechanisms underlying psychedelics' effects, focusing on their ability to modulate **[...] Read more.**

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The Effects of Oral Semaglutide on Hepatic Fibrosis in Subjects with Type 2 Diabetes in Real-World Clinical Practice: A Post Hoc Analysis of the Sapporo-Oral SEMA Study (/1424-8247/18/1/129)

by **Hiroya Kitsunai**, **Yuka Shinozaki**, **Sho Furusawa**, **Naoyuki Kitao**, **Miki Ito**, **Hiroyoshi Kurihara**, **Chiho Oba-Yamamoto**, **Jun Takeuchi**, **Akinobu Nakamura**, **Yumi Takiyama** and **Hiroshi Nomoto**

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Abstract Background/Objectives: Metabolic dysfunction-associated steatotic liver disease (MASLD) is an important common comorbidity in subjects with type 2 diabetes, and liver fibrosis is a factor directly related to its prognosis. Glucagon-like peptide-1 receptor agonists are useful treatment options for MASLD; however, the efficacy of **[...] Read more.**

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Impact of Oseltamivir and Diabetes Development (/1424-8247/18/1/128)

by **Bor-Show Tzang**, **Chih-Chen Tzang**, **Pei-Hua Chuang**, **I-Ying Kuo**, **Yu-Chun Pan**, **Pei-Hsun Wu** and **Tsai-Ching Hsu**

Pharmaceuticals **2025**, *18*(1), 128; https://doi.org/10.3390/ph18010128 (https://doi.org/10.3390/ph18010128) - 18 Jan 2025

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Abstract **Background/Objectives**: Influenza is a major global health challenge, causing thousands of deaths annually. Antiviral drugs, particularly oseltamivir, a neuraminidase inhibitor, have become essential therapeutic options due to their oral bioavailability and efficacy. Previous studies suggest a potential association between oseltamivir use and **[...] Read more.**

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Recent Advances in Peptide-Loaded PLGA Nanocarriers for Drug Delivery and Regenerative Medicine (/1424-8247/18/1/127)

by **Hossein Omidian**, **Renae L. Wilson** and **Ana M. Castejon**

Pharmaceuticals **2025**, *18*(1), 127; https://doi.org/10.3390/ph18010127 (https://doi.org/10.3390/ph18010127) - 18 Jan 2025

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Abstract Peptide-loaded poly(lactide-co-glycolide) (PLGA) nanocarriers represent a transformative approach to addressing the challenges of peptide-based therapies. These systems offer solutions to peptide instability, enzymatic degradation, and limited bioavailability by providing controlled release, targeted delivery, and improved stability. The versatility of PLGA nanocarriers extends across **[...] Read more.**

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Examining Prenylated Xanthones as Potential Inhibitors Against Ketohexokinase C Isoform for the Treatment of Fructose-Driven Metabolic Disorders: An Integrated Computational Approach (/1424-8247/18/1/126)

by **Tila[illegible]aman** and **Magdi Awadalla Mohamed**

Pharmaceuticals **2025**, *18*(1), 126; https://doi.org/10.3390/ph18010126 (https://doi.org/10.3390/

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Abstract **Background/Objectives:** Fructose-driven metabolic disorders, such as obesity, non-alcoholic fatty liver disease (NAFLD), dyslipidemia, and type 2 diabetes, are significant global health challenges. Ketohexokinase C (KHK-C), a key enzyme in fructose metabolism, is a promising therapeutic target. α-Mangostin, a naturally occurring prenylated xanthone, has **[...] Read more.**

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2-Aminothiophene Derivatives—New Drug Candidates Against Leishmaniasis: Drug Design, Synthesis, Pharmacomodulation, and Antileishmanial Activity (/1424-8247/18/1/125)

by **Rodrigo Santos Aquino de Araújo**, **Vitória Gaspar Bernardo**, **Robert da Silva Tibúrcio**, **Danilo Cesar Galindo Bedor**, **Michel Leandro de Campos**, **Roberto Pontarolo**, **Julyanne Maria Saraiva de Sousa**, **Klinger Antonio da Franca Rodrigues**, **Marcus Tullius Scotti**, **Anuraj Nayarisseri**, **Pascal Marchand** and **Francisco Jaime Bezerra Mendonça-Junior**

Pharmaceuticals **2025**, *18*(1), 125; https://doi.org/10.3390/ph18010125 (https://doi.org/10.3390/ph18010125) - 17 Jan 2025

Abstract **Background/Objectives**: Leishmaniasis is one of the 20 Neglected Tropical Diseases according to the WHO, affecting approximately 12 million people in four continents, generating serious public health problems. The lack of therapeutic options, associated with toxicity and the emergence of resistance to the **[...] Read more.**

(This article belongs to the Special Issue **Drug Discovery of Antiprotozoal Agents 2024 (/journal/pharmaceuticals/special_issues/4QN3198844)**)

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The Stability-Indicating Ultra High-Performance Liquid Chromatography with Diode Array Detector and Tandem Mass Spectrometry Method Applied for the Forced Degradation Study of Ritlecitinib: An Appraisal of Green and Blue Metrics (/1424-8247/18/1/124)

by **Jelena Kovačić**, **Daniela Amidžić Klarić**, **Nikša Turk**, **Željko Krznarić**, **Emma Riordan** and **Ana Mornar**

Pharmaceuticals **2025**, *18*(1), 124; https://doi.org/10.3390/ph18010124 (https://doi.org/10.3390/ph18010124) - 17 Jan 2025

Cited by 1 (/1424-8247/18/1/124#metrics) | Viewed by 1675

Abstract Background/Objectives: Janus kinase inhibitors open new horizons for small-molecule drugs in treating inflammatory bowel disease, with ritlecitinib demonstrating significant efficacy in clinical trials for ulcerative colitis and Crohn's disease. Ritlecitinib, a second-generation JAK3 inhibitor, is a novel therapeutic agent for alopecia areata and **[...] Read more.**

(This article belongs to the Special Issue **Advances in Drug Analysis and Drug Development (/journal/pharmaceuticals/special_issues/1QF90ZP65X)**)

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Open Access Article 14 pages, 11171 KiB (/1424-8247/18/1/123/pdf?version=1737124882)

Quinazolinone Derivative MR2938 Protects DSS-Induced Barrier Dysfunction in Mice Through Regulating Gut Microbiota (/1424-8247/18/1/123)

by **Ling Lv**, **Mireguli Maimaitiming**, **Jichen Yang**, **Shuli Xia**, **Xin Li**, **Pingyuan Wang**, **Zhiqing Liu** and **Chang-Yun Wang**

Pharmaceuticals **2025**, *18*(1), 123; **https://doi.org/10.3390/ph18010123 (https://doi.org/10.3390/ph18010123)** - 17 Jan 2025

Abstract Background/Objectives: Ulcerative colitis (UC), a chronic inflammatory bowel disease (IBD), is characterized by colorectal immune infiltration and significant microbiota compositional changes. Gut microbiota homeostasis is necessary to maintain the healthy state of humans. MR2938, a quinazolin-4(3H)-one derivative derived from the marine natural **[...] Read more.**

(This article belongs to the Special Issue **Medications: Interactions with Diet, Herbs, Dietary Supplements and Probiotics (/journal/pharmaceuticals/special_issues/941P72T1ZU)**)

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Open Access Article 25 pages, 2882 KiB (/1424-8247/18/1/122/pdf?version=1737452470)

The Clinical Pharmacokinetics and Pharmacodynamics of Glimepiride—A Systematic Review and Meta-Analysis (/1424-8247/18/1/122)

by **Mubara Azhar**, **Mohammed S. Alasmari**, **Ammara Zamir**, **Hamid Saeed**, **Faleh Alqahtani**, **Tanveer Ahmad** and **Muhammad Fawad Rasool**

Pharmaceuticals **2025**, *18*(1), 122; **https://doi.org/10.3390/ph18010122 (https://doi.org/10.3390/ph18010122)** - 17 Jan 2025

Abstr ackground/Objectives: Glimepiride (GLM), a commonly used sulphonylurea drug for the manage ent of type 2 diabetes mellitus (T2DM), has been the subject of numerous studies exploring its kinetic behaviors. However, a comprehensive evaluation that synthesizes all available pharmacokinetic (PK)

data across diverse populations remains **[...] Read more.**

(This article belongs to the Special Issue **The 20th Anniversary of Pharmaceuticals—Advances in Pharmacology (/journal/pharmaceuticals/special_issues/9I18M66F90)**)

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24 pages, 5476 KiB **(/1424-8247/18/1/121/pdf?version=1737120671)**

Open Access Editor's Choice Article

Sustainable Skincare Innovation: Cork Powder Extracts as Active Ingredients for Skin Aging (/1424-8247/18/1/121)

by **Ana Silva**, **Cláudia Pinto**, **Sara Cravo**, **Sandra Mota**, **Liliana Rego**, **Smeera Ratanji**, **Clara Quintas**, **Joana Rocha e Silva**, **Carlos Afonso**, **Maria Elizabeth Tiritan**, **Honorina Cidade**, **Teresa Cruz** and **Isabel F. Almeida**

Pharmaceuticals **2025**, *18*(1), 121; **https://doi.org/10.3390/ph18010121 (https://doi.org/10.3390/ph18010121)** - 17 Jan 2025

Abstract Background: An emerging practice within the concept of circular beauty involves the upcycling of agro-industrial by-products. Cork processing, for instance, yields by-products like cork powder, which presents an opportunity to create value-added cosmetic ingredients. Building upon our previous research, demonstrating the antioxidant **[...] Read more.**

(This article belongs to the Special Issue **Natural-Based Skincare Solutions (/journal/pharmaceuticals/special_issues/OS2II12KD9)**)

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Open Access Review 21 pages, 328 KiB **(/1424-8247/18/1/120/pdf?version=1737112166)**

Opioid System and Epithelial–Mesenchymal Transition (/1424-8247/18/1/120)

by **Marzena Łazarczyk**, **Dominik Skiba**, **Michel-Edwar Mickael**, **Kinga Jaskuła**, **Agata Nawrocka**, **Piotr Religa** and **Mariusz Sacharczuk**

Pharmaceuticals **2025**, *18*(1), 120; **https://doi.org/10.3390/ph18010120 (https://doi.org/10.3390/ph18010120)** - 17 Jan 2025

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Abstract Opioids are a challenging class of drugs due to their dual role. They alleviate pain, but also pose a risk of dependency, or trigger constipation, particularly in cancer patients, who require the more potent painkillers in more advanced stages of the disease, closely **[...] Read more.**

(This article belongs to the Special Issue **Targeting Opioid Receptors for Innovative Therapies: Present and Emerging Concepts in Opioid Cure (/journal/pharmaceuticals/special_issues/ZU8MA1P15W)**)

Open Access Article 14 pages, 1950 KiB **(/1424-8247/18/1/119/pdf?version=1737110702)**

Fully Automated Production of (((*S*)-1-Carboxy-5-(6-([^{18}F]fluoro)-2-methoxynicotinamido)pentyl)carbamoyl)-L-glutamic Acid ([^{18}F]JK-PSMA-7) (/1424-8247/18/1/119)

by **Philipp Krapf**, **Thomas Wicher**, **Boris D. Zlatopolskiy**, **Johannes Ermert** and **Bernd Neumaier**

Pharmaceuticals **2025**, *18*(1), 119; **https://doi.org/10.3390/ph18010119 (https://doi.org/10.3390/ph18010119)** - 17 Jan 2025

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Abstract Background: The radiotracer [^{18}F]JK-PSMA-7, a prostate cancer imaging agent for positron emission tomography (PET), was previously synthesized by indirect radiofluorination using an ^{18}F-labeled active ester as a prosthetic group, which had to be isolated and purified before it could be **[...] Read more.**

(This article belongs to the Special Issue **Past, Present and Future Radiotracer Techniques: Radiopharmaceuticals in Cancer Theranostics (/journal/pharmaceuticals/special_issues/KDJ9NFKU7C)**)

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54 pages, 6031 KiB **(/1424-8247/18/1/118/pdf?version=1737438308)**

Open Access Editor's Choice Article

(*E*)-1-(3-(3-Hydroxy-4-Methoxyphenyl)-1-(3,4,5-Trimethoxyphenyl)allyl)-1*H*-1,2,4-Triazole and Related

Compounds: Their Synthesis and Biological Evaluation as Novel Antimitotic Agents Targeting Breast Cancer (/1424-8247/18/1/118)

by **Gloria Ana**, **Azizah M. Malebari**, **Sara Noorani**, **Darren Fayne**, **Niamh M. O'Boyle**, **Daniela M. Zisterer**, **Elisangela Flavia Pimentel**, **Denise Coutinho Endringer** and **Mary J. Meegan**

Pharmaceuticals **2025**, *18*(1), 118; **https://doi.org/10.3390/ph18010118 (https://doi.org/10.3390/ph18010118)** - 17 Jan 2025

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Abstract Background/Objectives: The synthesis of (*E*)-1-(1,3-diphenylallyl)-1*H*-1,2,4-triazoles and related compounds as anti-mitotic agents with activity in breast cancer was investigated. These compounds were designed as hybrids of the microtubule-targeting chalcones, indanones, and the aromatase inhibitor letrozole. **Methods**: A panel of **[...] Read more.**

(This article belongs to the Special Issue **The 20th Anniversary of Pharmaceuticals—Advances in Medicinal Chemistry (/journal/pharmaceuticals/special_issues/WB127IWX68)**)

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Open Access Article 11 pages, 1230 KiB (/1424-8247/18/1/117/pdf?version=1737106825)

Neuroprotective Actions of Cannabinoids in the Bovine Isolated Retina: Role of Hydrogen Sulfide (/1424-8247/18/1/117)

by **Leah Bush**, **Anthonia Okolie**, **Jenaye Robinson**, **Fatima Muili**, **Catherine A. Opere**, **Sunny E. Ohia** and **Ya Fatou Njie Mbye**

Pharmaceuticals **2025**, *18*(1), 117; https://doi.org/10.3390/ph18010117 (https://doi.org/10.3390/ph18010117) - 17 Jan 2025

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Abstract Both hydrogen sulfide and endocannabinoids can protect the neural retina from toxic insults under in vitro and in vivo conditions. **Purpose:** The aim of the present study was two-fold: (a) to examine the neuroprotective action of cannabinoids [methanandamide and 2-arachidonyl glycerol (2-AG)] against **[...]** **Read more.**

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Open Access Article 19 pages, 8470 KiB (/1424-8247/18/1/116/pdf?version=1737105797)

Investigating the Effect and Potential Mechanism of Rhamnetin 3-*O*-α-Rhamnoside on Acute Liver Injury In Vivo and In Vitro (/1424-8247/18/1/116)

by **Dandan Deng**, **Borong Zhao**, **Hong Yang**, **Songsong Wang**, **Ziying Geng**, **Jiangtao Zhou**, **Guane Yang** and **Liwen Han**

Pharmaceuticals **2025**, *18*(1), 116; https://doi.org/10.3390/ph18010116 (https://doi.org/10.3390/ph18010116) - 17 Jan 2025
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Abstract **Background/Objectives**: Rhamnetin 3-*O*-α-rhamnoside (ARR) is a major flavonoid of the herb *Loranthus tanakae* Franch. & Sav., which has been used for treating liver diseases in China. However, the protective effect of ARR on the liver has not been reported. **Methods [...] Read more.**

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Open Access Article 21 pages, 6062 KiB (/1424-8247/18/1/115/pdf?version=1737100453)

Exploring Azithromycin's Neuroprotective Role in Traumatic Brain Injury: Insights into Cognitive and Motor Recovery and Neuroinflammatory Modulation (/1424-8247/18/1/115)

by **Mohannad A. Almikhlafi**, **Nehad A. Abdallah**, **Aakash Kumar**, **Tarun Sharma**, **Zuber Khan**, **Haifa A. Fadil**, **Sultan Althagfan**, **Ahmed K. B. Aljohani**, **Sara A. Almadani**, **Samar F. Miski**, **Tahani Saeedi**, **Rayan S. Alharbi**, **Abdulrahman M. Al-Harthe**, **Mohammed H. Alsubhi**, **Hanaa Wanas**, **Ahmed Aldhafiri**, **Sidharth Mehan** and **Hossein M. Elbadawy**

Pharmaceuticals **2025**, *18*(1), 115; **https://doi.org/10.3390/ph18010115 (https://doi.org/10.3390/ph18010115)** - 16 Jan 2025
Viewed by 1531

Abstract Background: Traumatic brain injury (TBI) is a leading cause of mortality worldwide and often results in substantial cognitive, motor, and psychological impairments, triggering oxidative stress, neuroinflammation, and neurodegeneration. This study examined the neuroprotective effects of azithromycin (AZI) in TBI. Methods: TBI was induced **[...] Read more.**

(This article belongs to the Special Issue **Barrier Dynamics and Immune Interplay in Brain Aging and Injury (/journal/pharmaceuticals/special_issues/I9KC4U0D8L)**)

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Post-Marketing Pharmacovigilance of Canakinumab from the FDA Adverse Event Reporting System (FAERS) (/1424-8247/18/1/114)

by **Weidong Zhang**, **Yunzhou Chen**, **Zeyu Yao**, **Mengling Ouyang**, **Minghui Sun** and **Shupeng Zou**
Pharmaceuticals **2025**, *18*(1), 114; https://doi.org/10.3390/ph18010114 (https://doi.org/10.3390/ph18010114) - 16 Jan 2025
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Abstract Background: Canakinumab, a humanized anti-IL-1β monoclonal antibody, is known for its ability to suppress IL-1β-mediated inflammation. However, continuous monitoring of its safety remains essential. Thus, we comprehensively evaluated the safety signals of canakinumab by data mining from FAERS.
Methods: We used a disproportionate **[...] Read more.**
(This article belongs to the Special Issue **Therapeutic Drug Monitoring and Adverse Drug Reactions: 2nd Edition (/journal/pharmaceuticals/special_issues/2J1807QZ17)**)

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Two- and Three-Dimensional Culture Systems: Respiratory In Vitro Tissue Models for Chemical Screening and Risk-Based Decision Making (/1424-8247/18/1/113)

by **Joanne Wallace**, **Mary C. McElroy**, **Mitchell Klausner**, **Richard Corley** and **Seyoum Ayehunie**
Pharmaceuticals **2025**, *18*(1), 113; https://doi.org/10.3390/ph18010113 (https://doi.org/10.3390/ph18010113) - 16 Jan 2025
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Abstract Risk of lung damage from inhaled chemicals or substances has long been assessed using animal models. However, New Approach Methodologies (NAMs) that replace, reduce, and/or refine the use of animals in safety testing such as 2D and 3D cultures are increasingly being used **[...] Read more.**
(This article belongs to the Special Issue **2D and 3D Culture Systems: Current Trends and Biomedical Applications (/journal/pharmaceuticals/special_issues/AJV1468452)**)

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Open Access Review 20 pages, 1911 KiB (/1424-8247/18/1/112/pdf?version=1737032962)

Dysregulation of Mitochondrial Homeostasis in Cardiovascular Diseases (/1424-8247/18/1/112)

by **Ricky Patil**, **Hui Wang**, **Matthew Kazaleh**, **Gorav Ailawadi** and **Morgan Salmon**

Pharmaceuticals **2025**, *18*(1), 112; https://doi.org/10.3390/ph18010112 (https://doi.org/10.3390/ph18010112) - 16 Jan 2025

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Abstract Mitochondria dysfunction plays a central role in the development of vascular diseases as oxidative stress promotes alterations in mitochondrial morphology and function that contribute to disease progression. Redox imbalances can affect normal cellular processes including mitochondrial biogenesis, electrochemical equilibrium, and the regulation of **[...] Read more.**

(This article belongs to the Special Issue **Smooth Muscle and Endothelial Cells as Pharmacological Targets for Acute Oxidative Stress (/journal/pharmaceuticals/special_issues/EF040BIE3B)**)

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Open Access Correction 2 pages, 711 KiB (/1424-8247/18/1/111/pdf?version=1737023944)

Correction: Khavinson et al. Neuroprotective Effects of Tripeptides—Epigenetic Regulators in Mouse Model of Alzheimer's Disease. *Pharmaceuticals* 2021, *14*, 515 (/1424-8247/18/1/111)

by **Vladimir Khavinson**, **Anastasiia Ilina**, **Nina Kraskovskaya**, **Natalia Linkova**, **Nina Kolchina**, **Ekaterina Mironova**, **Alexander Erofeev** and **Michael Petukhov**

Pharmaceuticals **2025**, *18*(1), 111; https://doi.org/10.3390/ph18010111 (https://doi.org/10.3390/ph18010111) - 16 Jan 2025

Viewe 582

Abstract In the original publication [...] **Full article (/1424-8247/18/1/111)**

(This article belongs to the Section **Medicinal Chemistry (/journal/pharmaceuticals/sections/pharm_medicinal_chemistry)**)

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Open Access Article 16 pages, 3994 KiB **(/1424-8247/18/1/110/pdf?version=1748245330)**

Syringaldehyde Alleviates Cardiac Hypertrophy Induced by Hyperglycemia in H9c2 Cells Through GLP-1 Receptor Signals (/1424-8247/18/1/110)

by **Yingxiao Li**, **Chao-Tien Hsu**, **Ting-Ting Yang** and **Kai-Chun Cheng**

Pharmaceuticals **2025**, *18*(1), 110; **https://doi.org/10.3390/ph18010110 (https://doi.org/10.3390/ph18010110)** - 16 Jan 2025

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Abstract Background: Cardiac hypertrophy is a significant complication of diabetes, often triggered by hyperglycemia. Glucagon-like peptide-1 (GLP-1) receptor agonists alleviate cardiac hypertrophy, but their efficacy diminishes under GLP-1 resistance. Syringaldehyde (SA), a natural phenolic compound, may activate GLP-1 receptors and mitigate hypertrophy. This study **[...] Read more.**

(This article belongs to the Special Issue **Natural Products in Diabetes Mellitus: 2nd Edition (/journal/pharmaceuticals/special_issues/HQ36LD85MX)**)

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Open Access Article 24 pages, 8366 KiB **(/1424-8247/18/1/109/pdf?version=1737019168)**

Exploring the Underlying Mechanism of Weiling Decoction Alleviates Cold-Dampness Diarrhea Based on Network Pharmacology, Transcriptomics, Molecular Docking and Experimental Validation (/1424-8247/18/1/109)

by **Yannan Zhang**, **Shuai Zhang**, **Yimeng Fan**, **Sijuan Huang**, **Shimin Wang**, **Zhihui Hao** and

Jianzhong Shen

Pharmaceuticals **2025**, *18*(1), 109; **https://doi.org/10.3390/ph18010109 (https://doi.org/10.3390/ph18010109)** - 16 Jan 2025

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Abstract Background: Cold-dampness diarrhea (CDD) is a common gastrointestinal disorder in children, characterized by diarrhea and intestinal barrier dysfunction. Weiling decoction (WLD) is frequently used in clinical practice to treat CDD, a condition triggered by multiple factors. However, the molecular mechanisms underlying its **[...] Read more.**

(This article belongs to the Section **Pharmacology (/journal/pharmaceuticals/sections/pharm-pharmacology)**)

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Open Access Article 10 pages, 397 KiB **(/1424-8247/18/1/108/pdf?version=1737083655)**

Ceftazidime-Avibactam Versus Colistin for the Treatment of Multidrug-Resistant *Pseudomonas aeruginosa* Infections: A Multicenter Cohort Study (/1424-8247/18/1/108)

by **Thamer A. Almangour**, **Zakiyah Alkherb**, **Leen Ghonem**, **Mohammed Al Musawa**, **Abdullah Almohaizeie**, **Sara Almuhisen**, **Aminah Alharbi**, **Nader Damfu**, **Doaa Aljefri**, **Jeelan Alghaith**, **Awaly Alfozan**, **Ahlam Alghamdi**, **Ahmad Aljabri**, **Abdullah A. Alhifany**, **Mohammed Alessa** and **Yazed Saleh Alsowaida**

Pharmaceuticals **2025**, *18*(1), 108; **https://doi.org/10.3390/ph18010108 (https://doi.org/10.3390/ph18010108)** - 16 Jan 2025

Viewe 685

Abstract Purpose: To evaluate the real-world evidence of ceftazidime-avibactam (CAZ-AVI) compared to

intravenous colistin for the treatment of multidrug-resistant (MDR) *P. aeruginosa* infections. **Method:** This is a multicenter, retrospective cohort study conducted in the period between 2017 and 2023 at five institutions for patients **[...] Read more.**

(This article belongs to the Special Issue **Antibiotic Resistance in Gram-Negative Bacteria: The Threat from the Pink Corner, 2nd Edition (/journal/pharmaceuticals/special_issues/ZR45DPC7Q6)**)

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Open Access Article 14 pages, 1613 KiB **(/1424-8247/18/1/107/pdf?version=1737006965)**

The Role of Endogenous Beta-Endorphin and Enkephalins in the Crosstalk Between Ethanol and Morphine (/1424-8247/18/1/107)

by **Andy Tseng**, **Syed Muzzammil Ahmad**, **Abdul Hamid** and **Kabirullah Lutfy**

Pharmaceuticals **2025**, *18*(1), 107; **https://doi.org/10.3390/ph18010107 (https://doi.org/10.3390/ph18010107)** - 16 Jan 2025

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Abstract Background: There is clinical concern about the combined use of alcohol and opiates. Several lines of evidence support an interaction between alcohol and the endogenous opioid system. Thus, we hypothesized that ethanol, by causing the release of opioid peptides, may sensitize the system **[...] Read more.**

(This article belongs to the Special Issue **Targeting Opioid Receptors for Innovative Therapies: Present and Emerging Concepts in Opioid Cure (/journal/pharmaceuticals/special_issues/ZU8MA1P15W)**)

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Open Access Article 23 pages, 3680 KiB (/1424-8247/18/1/106/pdf?version=1737338300)

Possibility of Using NO Modulators for Pharmacocorrection of Endothelial Dysfunction After Prenatal Hypoxia (/1424-8247/18/1/106)

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by **Igor Belenichev**, **Olena Popazova**, **Oleh Yadlovskyi**, **Nina Bukhtiyarova**, **Victor Ryzhenko**, **Sergii Pavlov**, **Valentyn Oksenych** and **Oleksandr Kamyshnyi**

Pharmaceuticals **2025**, *18*(1), 106; **https://doi.org/10.3390/ph18010106 (https://doi.org/10.3390/ph18010106)** - 16 Jan 2025

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Abstract Prenatal hypoxia (PH) is a key factor in the development of long-term cardiovascular disorders, which are caused by various mechanisms of endothelial dysfunction (ED), including those associated with NO deficiency. This emphasizes the potential of therapeutic agents with NO modulator properties, such as **[...] Read more.**

(This article belongs to the Special Issue **Therapeutic Methods Against Acute and Chronic Diseases and Oxidative Stress (/journal/pharmaceuticals/special_issues/07IJ54IWFA)**)

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Open Access Systematic Review 16 pages, 1596 KiB (/1424-8247/18/1/105/pdf?version=1737001099)

The Effect of the Concurrent Use of Angiotensin-Converting Enzyme Inhibitors or Receptor Blockers on Toxicity and Outcomes in Patients Treated with Radiotherapy: A Systematic Review and Meta-Analysis (/1424-8247/18/1/105)

by **Wan-Chuen Liao**, **Hala Shokr**, **Corinne Faivre-Finn**, **Clare Dempsey**, **Kaye Janine Williams** and **Li-Chia Chen**

Pharmaceuticals **2025**, *18*(1), 105; **https://doi.org/10.3390/ph18010105 (https://doi.org/10.3390/ph18010105)** - 16 Jan 2025

Viewe 1814

Abstra Background/Objectives: ACEIs protect against radiation pneumonitis by reducing angiotensin II production, oxidative stress, and inflammation. This study highlights the significance of concurrent

angiotensin-converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) use in radiotherapy by evaluating its impact on radiotherapy-related side effects **[...] Read more.**
(This article belongs to the Section **Pharmacology (/journal/pharmaceuticals/sections/pharm-pharmacology)**)

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Mechanisms of Copper-Induced Autophagy and Links with Human Diseases (/1424-8247/18/1/99)
by **Yuanyuan Fu**, **Shuyan Zeng**, **Zhenlin Wang**, **Huiting Huang**, **Xin Zhao** and **Min Li**
Pharmaceuticals **2025**, *18*(1), 99; **https://doi.org/10.3390/ph18010099 (https://doi.org/10.3390/ph18010099)** - 15 Jan 2025
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Abstract As a structural and catalytic cofactor, copper is involved in many biological pathways and is required for the biochemistry of all living organisms. However, excess intracellular copper can induce cell death due to its potential to catalyze the generation of reactive oxygen species, **[...] Read more.**
(This article belongs to the Special Issue **Pharmaceuticals 2024—Recent Advances in Pharmaceutical Sciences Towards a Healthy Life (/journal/pharmaceuticals/special_issues/JRUAJS5B2I)**)

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Open Access Article 19 pages, 2299 KiB **(/1424-8247/18/1/98/pdf?version=1736934910)**

New Evidence for *Cotinus coggygria* Scop. Extracts Application in Gastrointestinal Ailments (/1424-8247/18/1/98)
by **Dejan Stojković**, **Nina Dragičević**, **Marija Ivanov**, **Nevena Gajović**, **Milena Jurišević**, **Ivan Jovanović**, **Marina Tomović** and **Jelena Živković**
Pharmaceuticals **2025**, *18*(1), 98; **https://doi.org/10.3390/ph18010098 (https://doi.org/10.3390/ph18010098)** - 15 Jan 2025
Cited [illegible] (/1424-8247/18/1/98#metrics) | Viewed by 1210

Abstract Background/Objectives: *Cotinus coggygria* Scop. is traditionally used for treatment of various

gastrointestinal ailments. In this study, we investigated the phytochemical profile and biological activities of leaves, bark and flowers extracts of *C. coggygria.* Methods: Phytochemical analysis was performed using HPLC. The antimicrobial activity **[...] Read more.**

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Open Access Review 29 pages, 1517 KiB **(/1424-8247/18/1/104/pdf?version=1737095767)**

Targeting Cytokine-Mediated Inflammation in Brain Disorders: Developing New Treatment Strategies (/1424-8247/18/1/104)

by **Rahul Mallick**, **Sanjay Basak**, **Premanjali Chowdhury**, **Prasenjit Bhowmik**, **Ranjit K. Das**, **Antara Banerjee**, **Sujay Paul**, **Surajit Pathak** and **Asim K. Duttaroy**

Pharmaceuticals **2025**, *18*(1), 104; **https://doi.org/10.3390/ph18010104 (https://doi.org/10.3390/ph18010104)** - 15 Jan 2025

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Abstract Cytokine-mediated inflammation is increasingly recognized for playing a vital role in the pathophysiology of a wide range of brain disorders, including neurodegenerative, psychiatric, and neurodevelopmental problems. Pro-inflammatory cytokines such as interleukin-1 (IL-1), tumor necrosis factor-alpha (TNF-α), and interleukin-6 (IL-6) cause neuroinflammation, alter brain **[...] Read more.**

(This article belongs to the Special Issue **Pharmacotherapy of Neurodegeneration Disorders (/journal/pharmaceuticals/special_issues/35K4558819)**)

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Open Access Article 27 pages, 8069 KiB **(/1424-8247/18/1/103/pdf?version=1737018038)**

Unveiling the Phytochemical Diversity and Bioactivity of *Astragalus melanophrurius*: A First Report Integrating Experimental and In Silico Approaches (/1424-8247/18/1/103)

by **Gulcan Gencer**, **Cengiz Sarikurkcu** and **Bektas Tepe**
Pharmaceuticals **2025**, *18*(1), 103; **https://doi.org/10.3390/ph18010103 (https://doi.org/10.3390/ph18010103)** - 15 Jan 2025
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Abstract Background: The genus *Astragalus* is renowned for its diverse bioactive potential, yet the chemical composition and biological properties of *Astragalus melanophrurius* remain inadequately explored. This study aimed to investigate the chemical profile, antioxidant capacity, and enzyme inhibitory activities of methanol extracts from **[...] Read more.**

(This article belongs to the Section **Natural Products (/journal/pharmaceuticals/sections/natural_products)**)

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Open Access Systematic Review 29 pages, 3627 KiB **(/1424-8247/18/1/102/pdf?version=1737010504)**

Revisiting ABC Transporters and Their Clinical Significance in Glioblastoma (/1424-8247/18/1/102)

by **Br[illegible]n Wee Siang Phon**, **Shalini Sundramurthi Chelliah**, **Dina El-Rabie Osman**, **Saatheeyavaane Bhuvanendran**, **Ammu Kutty Radhakrishnan** and **Muhamad Noor Alfarizal Kamarudin**

Pharmaceuticals **2025**, *18*(1), 102; **https://doi.org/10.3390/ph18010102 (https://doi.org/10.3390/ph18010102)** - 15 Jan 2025

Cited by 2 (/1424-8247/18/1/102#metrics) | Viewed by 1685

Abstract Background: The multiple drug-resistant phenomenon has long since plagued the effectiveness of various chemotherapies used in the treatment of patients with glioblastoma (GBM), which is still incurable to this day. ATP-binding cassette (ABC) transporters function as drug transporters and have been touted **[...] Read more.**

(This article belongs to the Special Issue **Drug Resistance Against Cancer Treatment (/journal/pharmaceuticals/special_issues/N2237WVUZ6)**)

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Open Access Article 19 pages, 1274 KiB **(/1424-8247/18/1/101/pdf?version=1736948794)**

Protective Effects of Phycobiliproteins from *Arthrospira maxima* (Spirulina) Against Cyclophosphamide-Induced Embryotoxicity and Genotoxicity in Pregnant CD1 Mice (/1424-8247/18/1/101)

by **Yuliana García-Martínez**, **Amparo Celene Razo-Estrada**, **Ricardo Pérez-Pastén-Borja**, **Candelaria Galván-Colorado**, **Germán Chamorro-Cevallos**, **José Jorge Chanona-Pérez**, **Oscar Alberto López-Canales**, **Hariz Islas-Flores**, **Salud Pérez-Gutiérrez**, **Joaquín Cordero-Martínez** and **José Melesio Cristóbal-Luna**

Pharmaceuticals **2025**, *18*(1), 101; **https://doi.org/10.3390/ph18010101 (https://doi.org/10.3390/ph18010101)** - 15 Jan 2025

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Abstract Background/Objectives: In recent years the global incidence of cancer during pregnancy is rising, occurring in 1 out of every 1000 pregnancies. In this regard, the most used chemotherapy drugs to treat cancer are alkylating agents such as cyclophosphamide (Cp). Despite its great **[...] Read more.**

(This article belongs to the Special Issue **Bioactive Compounds Derived from Plants and Their Medicinal Potential (/journal/pharmaceuticals/special_issues/65WHQ1BRU9)**)

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Open Access Article 24 pages, 5542 KiB (/1424-8247/18/1/100/pdf?version=1736942750)

Investigating the Therapeutic Mechanisms of Total Saikosaponins in Alzheimer's Disease: A Metabolomic and Proteomic Approach (/1424-8247/18/1/100)

by **Huiling Wei**, **Tianyi Du**, **Weiwei Zhang**, **Wei Ma**, **Yao Yao** and **Juan Li**

Pharmaceuticals **2025**, *18*(1), 100; https://doi.org/10.3390/ph18010100 (https://doi.org/10.3390/ph18010100) - 15 Jan 2025

Abstract Alzheimer's disease (AD) is the leading cause of dementia among the elderly, yet effective treatments remain elusive. Total saikosaponins (TSS), the primary bioactive components in *Bupleurum chinense*, have shown promising therapeutic effects against AD in previous studies. **Methods**: To delve deeper **[...] Read more.**

(This article belongs to the Section **Pharmacology (/journal/pharmaceuticals/sections/pharm-pharmacology)**)

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Open Access Article 13 pages, 1566 KiB (/1424-8247/18/1/97/pdf?version=1736858083)

Synthesis and Evaluation of Cytotoxic Activity of RuCp(II) Complexes Bearing (Iso)nicotinic Acid Based Ligands (/1424-8247/18/1/97)

by **Bárbara Marques**, **Diogo M. Engrácia**, **João Franco Machado**, **Jaime A. S. Coelho**, **Filipa Mendes** and **Tânia S. Morais**

Pharmaceuticals **2025**, *18*(1), 97; https://doi.org/10.3390/ph18010097 (https://doi.org/10.3390/ph18010097) - 14 Jan 2025

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Abstract Background/Objectives: Cancer remains one of the major challenges of our century. Organometallic ruthenium complexes are gaining recognition as a highly promising group of compounds in the development of cancer treatments. Methods: Building on the auspicious results obtained for [Ru(η^5-C_5H [...] Read more.

(This article belongs to the Special Issue Medicinal Chemistry of Metal Complexes: Design, Synthesis and Evaluation (/journal/pharmaceuticals/special_issues/5NRCJ045Y1))

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Open Access Article 18 pages, 3941 KiB (/1424-8247/18/1/96/pdf?version=1736938369)

A Simple Machine Learning-Based Quantitative Structure–Activity Relationship Model for Predicting pIC_{50} Inhibition Values of FLT3 Tyrosine Kinase (/1424-8247/18/1/96)

by **Jackson J. Alcázar**, **Ignacio Sánchez**, **Cristian Merino**, **Bruno Monasterio**, **Gaspar Sajuria**, **Diego Miranda**, **Felipe Díaz** and **Paola R. Campodónico**

Pharmaceuticals **2025**, *18*(1), 96; https://doi.org/10.3390/ph18010096 (https://doi.org/10.3390/ph18010096) - 14 Jan 2025

Cited [...] (/1424-8247/18/1/96#metrics) | Viewed by 1853

Abstract **Background/Objectives:** Acute myeloid leukemia (AML) presents significant therapeutic

challenges, particularly in cases driven by mutations in the FLT3 tyrosine kinase. This study aimed to develop a robust and user-friendly machine learning-based quantitative structure–activity relationship (QSAR) model to predict the inhibitory potency (pIC_{50} **[...] Read more.**
(This article belongs to the Special Issue **Application of 2D and 3D-QSAR Models in Drug Design (/journal/pharmaceuticals/special_issues/JH712GW1PI)**)

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Open Access Article 13 pages, 1043 KiB **(/1424-8247/18/1/95/pdf?version=1736924524)**

Role of Metformin in Preventing New-Onset Chronic Kidney Disease in Patients with Type 2 Diabetes Mellitus (/1424-8247/18/1/95)

by **Yu-Ling Lin**, **Sheng-Hsiang Lin**, **Hsi-Hao Wang**, **Wan-Chia Hsu**, **Shih-Yuan Hung**, **Yuan-Yow Chiou**, **Hung-Hsiang Liou**, **Min-Yu Chang**, **Li-Chun Ho**, **Ching-Fang Wu** and **Yi-Che Lee**
Pharmaceuticals **2025**, *18*(1), 95; **https://doi.org/10.3390/ph18010095 (https://doi.org/10.3390/ph18010095)** - 14 Jan 2025
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Abstract **Background**: Recent evidence supports the protective role of metformin on kidney function in patients with type 2 diabetes mellitus. However, its potential to prevent new-onset chronic kidney disease (CKD) in patients with type 2 diabetes mellitus with normal renal function remains unclear. **[...] Read more.**
(This article belongs to the Section **Pharmacology (/journal/pharmaceuticals/sections/pharm-pharmacology)**)

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Open Access Article 20 pages, 6034 KiB (/1424-8247/18/1/94/pdf?version=1736847227)

Therapeutic Potential of Clove Oil in Mitigating Cadmium-Induced Hepatorenal Toxicity Through Antioxidant, Anti-Inflammatory, and Antiapoptotic Mechanisms (/1424-8247/18/1/94)

by **Inas M. Elgharib**, **Fatma M. Abdelhamid**, **Gehad E. Elshopakey**, **Hatem Sembawa**, **Talat A. Albukhari**, **Waheed A. Filimban**, **Rehab M. Bagadood**, **Mohamed E. El-Boshy** and **Engy F. Risha**

Pharmaceuticals **2025**, *18*(1), 94; **https://doi.org/10.3390/ph18010094 (https://doi.org/10.3390/ph18010094)** - 14 Jan 2025

Abstract Hazardous heavy metals, particularly cadmium (Cd), are widely distributed in the environment and cause oxidative stress in various animal and human organs. Clove oil (CLO), a common aromatic spice, has been used as a traditional medication as it has potent anti-inflammatory, antioxidant, and **[...] Read more.**

(This article belongs to the Section **Natural Products (/journal/pharmaceuticals/sections/natural_products)**)

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Open Access Correction 2 pages, 135 KiB (/1424-8247/18/1/93/pdf?version=1736818807)

Correction: Saber et al. BD-AcAc2 Mitigates Chronic Colitis in Rats: A Promising Multi-Pronged Approach Modulating Inflammasome Activity, Autophagy, and Pyroptosis. *Pharmaceuticals* 2023, *16*, 953 (/1424-8247/18/1/93)

by **Sameh Saber**, **Mohannad Mohammad S. Alamri**, **Jaber Alfaifi**, **Lobna A. Saleh**, **Sameh Abdel-Ghany**, **Adel Mohamed Aboregela**, **Alshaimaa A. Farrag**, **Abdulrahman H. Almaeen**, **Maso E. Adam**, **AbdulElah Al Jarallah AlQahtani**, **Ali M. S. Eleragi**, **Mustafa Ahmed Abdel-Reheim**, **Heba A. Ramadan** and **Osama A. Mohammed**

Pharmaceuticals **2025**, *18*(1), 93; **https://doi.org/10.3390/ph18010093 (https://doi.org/10.3390/ph18010093)** - 14 Jan 2025

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Abstract **Text Correction** [...] **Full article (/1424-8247/18/1/93)** **(/toggle_desktop_layout_cookie)**

(This article belongs to the Special Issue **Drug Treatments for Inflammatory Bowel Diseases (/journal/pharmaceuticals/special_issues/drug_colitis)**)

Open Access Editor's Choice Review 35 pages, 7073 KiB **(/1424-8247/18/1/92/pdf?version=1736923884)**

Anti-Biofilm Agents to Overcome *Pseudomonas aeruginosa* Antibiotic Resistance (/1424-8247/18/1/92)

by **Marie Hanot**, **Elodie Lohou** and **Pascal Sonnet**

Pharmaceuticals **2025**, *18*(1), 92; **https://doi.org/10.3390/ph18010092 (https://doi.org/10.3390/ph18010092)** - 13 Jan 2025

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Abstract *Pseudomonas aeruginosa* is one of world's most threatening bacteria. In addition to the emerging prevalence of multi-drug resistant (MDR) strains, the bacterium also possesses a wide variety of virulence traits that worsen the course of the infections. Particularly, its ability to form biofilms **[...] Read more.**

(This article belongs to the Special Issue **New Approaches to Fighting Infectious Diseases: Overcoming the Antimicrobial Resistance in Current Treatments (/journal/pharmaceuticals/special_issues/379PS2D43T)**)

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Open Access Article 26 pages, 11275 KiB (/1424-8247/18/1/91/pdf?version=1736846507)

Cytotoxic Activity of Bisphosphonic Derivatives Obtained by the Michaelis–Arbuzov or the Pudovik Reaction (/1424-8247/18/1/91)

by **Zsuzsanna Szalai**, **Janka Bednárik**, **Boldizsár Szigfrid Tóth**, **Angéla Takács**, **Szilárd Tekula**, **László Kőhidai**, **Konstantin Karaghiosoff**, **László Drahos** and **György Keglevich**

Pharmaceuticals **2025**, *18*(1), 91; **https://doi.org/10.3390/ph18010091 (https://doi.org/10.3390/ph18010091)** - 13 Jan 2025

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Abstract Background: Methylenebisphosphonic derivatives including hydroxy-methylenebisphosphonic species may be of potential biological activity, and a part of them is used in the treatment of bone diseases. **Methods:** Methylenebisphosphonates may be obtained by the Michaelis–Arbuzov reaction of suitably α-substituted methylphosphonates and trialkyl phosphites or phosphinous **[...] Read more.**

(This article belongs to the Special Issue **The Pharmacology of Bisphosphonates: New Advances (/journal/pharmaceuticals/special_issues/SJ68YILB61)**)

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Open Access Article 11 pages, 3049 KiB (/1424-8247/18/1/90/pdf?version=1736826873)

Silybin Cocrystals with Improved Solubility and Bioavailability (/1424-8247/18/1/90)

by **Bi g Zhu**, **Zhenfeng Ding**, **Xiaoyi Rong**, **Shengqiang Li** and **Xuefeng Mei**

Pharmaceuticals **2025**, *18*(1), 90; https://doi.org/10.3390/ph18010090 (https://doi.org/10.3390/

ph18010090) - 13 Jan 2025
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Abstract **Backgroud/Objectives:** Silymarin, an extract from milk thistle, is widely recognized for its therapeutic potential in treating liver disorders. However, its clinical utility is limited by the poor solubility and low bioavailability of its key active ingredient, Silybin. In this study, we sought to **[...] Read more.**
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Open Access Article 19 pages, 2933 KiB **(/1424-8247/18/1/89/pdf?version=1736778471)**

Therapeutic Potential of *Lappula patula* Extracts on Germline Development and DNA Damage Responses in *C. elegans* (/1424-8247/18/1/89)

by **Qinghao Meng**, **Anna Hu**, **Weiyu Xiao**, **Robert P. Borris** and **Hyun-Min Kim**
Pharmaceuticals **2025**, *18*(1), 89; **https://doi.org/10.3390/ph18010089 (https://doi.org/10.3390/ph18010089)** - 13 Jan 2025
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Abstract Background: *Lappula patula (L. patula*) is a plant with known medicinal properties, and its extracts have shown promise as potential anti-cancer agents. This study aimed to evaluate the nematocidal effects of L. patula extracts and investigate their impact on germline development, DNA **[...] Read more.**
(This article belongs to the Special Issue **Anticancer Compounds in Medicinal Plants — In Honour of the 20th Anniversary of *Pharmaceuticals* (/journal/pharmaceuticals/special_issues/N5EQQB09EX)**)

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Open Access Article 22 pages, 4827 KiB (/1424-8247/18/1/88/pdf?version=1736764629)

Synthesis of Anti-Inflammatory Drugs' Chalcone Derivatives and a Study of Their Conformational Properties Through a Combination of Nuclear Magnetic Resonance Spectroscopy and Molecular Modeling (/1424-8247/18/1/88)

by **Nikitas Georgiou**, **Andromachi Tzani**, **Kyriaki Vavougyiou**, **Christos Papadopoulos**, **Nikolaos Eleftheriadis**, **Primož Šket**, **Demeter Tzeli**, **Tuomas Niemi-Aro**, **Anastasia Detsi** and **Thomas Mavromoustakos**

Pharmaceuticals **2025**, *18*(1), 88; https://doi.org/10.3390/ph18010088 (https://doi.org/10.3390/ph18010088) - 13 Jan 2025
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Abstract Background: In this study, two chalcone analogs were synthesized through in silico and experimental methods, and their potential to inhibit the lipoxygenase enzyme, which plays a role in the inflammation pathway, was assessed. Specifically, this study is a continuation of previous research in **[...]** **Read more.**

(This article belongs to the Special Issue **Chalcones: Structure, Function, and Applications (/journal/pharmaceuticals/special_issues/38CYF50BDG)**)

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Open Access Review 29 pages, 1582 KiB (/1424-8247/18/1/87/pdf?version=1736756697)

Non-Viral Delivery Systems to Transport Nucleic Acids for Inherited Retinal Disorders (/1424-8247/18/1/87)

by **Md Jobair Jony**, **Ameya Joshi**, **Alekha Dash** and **Surabhi Shukla**

Pharmaceuticals **2025**, *18*(1), 87; https://doi.org/10.3390/ph18010087 (https://doi.org/10.3390/ph18010087) - 13 Jan 2025

Abstract Inherited retinal disorders (IRDs) represent a group of challenging genetic conditions that often lead to severe visual impairment or blindness. The complexity of these disorders, arising from their diverse genetic causes and the unique structural and functional aspects of retinal cells, has made **[...] Read more.**

(This article belongs to the Section **Biopharmaceuticals (/journal/pharmaceuticals/sections/biopharmaceuticals)**)

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Open Access Article 17 pages, 1865 KiB (/1424-8247/18/1/86/pdf?version=1736840879)

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Development of a Hydrocortisone Orodispersible Thin Film Containing Its Succinate Prodrug (/1424-8247/18/1/86)

by **Clément Boisseillier**, **Lucas Demange-Labriet**, **Dulanjalee Kariyawasam**, **Pauline Marchadour**, **Anne-Sophie Fauqueur**, **Maxime Annereau**, **Lucas Denis**, **Camille Cotteret**, **Salvatore Cisternino** and **Arnaud Schweitzer-Chaput**

Pharmaceuticals **2025**, *18*(1), 86; https://doi.org/10.3390/ph18010086 (https://doi.org/10.3390/ph18010086) - 13 Jan 2025

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Abstract Orodispersible thin film (ODF) is an innovative dosage form that allows for adjustable dosing and improved patient compliance. It is administered by mouth, where it dissolves, making it suitable for children. Objectives: The aim of the study was to develop and characterize an **[...] Read more.**

(This article belongs to the Special Issue **Advances in Pediatric Drug Formulations (/journal/pharmaceuticals/special_issues/20D3611T48)**)

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Open Access Article 26 pages, 10278 KiB (/1424-8247/18/1/85/pdf?version=1736732020)

Sambucus nigra-Lyophilized Fruit Extract Attenuated Acute Redox–Homeostatic Imbalance via Mutagenic and Oxidative Stress Modulation in Mice Model on Gentamicin-Induced Nephrotoxicity (/1424-8247/18/1/85)

by **Kamelia Petkova-Parlapanska**, **Ivaylo Stefanov**, **Julian Ananiev**, **Tsvetelin Georgiev**, **Petya Hadzhibozheva**, **Veselina Petrova-Tacheva**, **Nikolay Kaloyanov**, **Ekaterina Georgieva**, **Galin[illegible]olova** and **Yanka Karamalakova**

Pharm[illegible]ticals **2025**, *18*(1), 85; https://doi.org/10.3390/ph18010085 (https://doi.org/10.3390/ph18010085) - 13 Jan 2025

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Abstract Background: Gentamicin (GM) administration is associated with decreased metabolism, increased oxidative stress, and induction of nephrotoxicity. *Sambucus nigra* L., containing flavonoids, anthocyanins, and phytosterols, possesses antioxidant and anti-inflammatory potential. **Objectives:** The present study aimed to investigate the nephroprotective and anti-inflammatory potential of lyophilized **[...] Read more.**

(This article belongs to the Special Issue **Therapeutic Methods Against Acute and Chronic Diseases and Oxidative Stress (/journal/pharmaceuticals/special_issues/07IJ54IWFA)**)

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Anti-Tumor Necrosis Factor-α Use in Pediatric Inflammatory Bowel Disease—Reports from a Romanian Center (/1424-8247/18/1/84)

by **Roxana Matran**, **Andra-Mihaela Diaconu**, **Andreea Maria Iordache**, **Irina Dijmărescu**, **Alexandra Coroleucă**, **Daniela Păcurar** and **Cristina Becheanu**

Pharmaceuticals **2025**, *18*(1), 84; **https://doi.org/10.3390/ph18010084 (https://doi.org/10.3390/ph18010084)** - 11 Jan 2025

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Abstract Background/Objectives: The introduction of anti-tumor necrosis factor-α (anti-TNF-α) agents, particularly infliximab (IFX) and adalimumab (ADA), has significantly expanded the therapeutic arsenal for inflammatory bowel disease (IBD). While these biologics have demonstrated substantial efficacy, they are associated with a spectrum of potential adverse events **[...] Read more.**

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Antistaphylococcal Triazole-Based Molecular Hybrids: Design, Synthesis and Activity (/1424-8247/18/1/83)

by **Kostiantyn Shabelnyk**, **Alina Fominichenko**, **Oleksii Antypenko**, **Olexandr Gaponov**, **Svitlana Koptieva**, **Svitlana Shyshkina**, **Oleksii Voskoboinik**, **Sergiy Okovytyy**, **Serhii Kovalenko**, **Valentyn Oksenych** and **Oleksandr Kamyshnyi**

Pharmaceuticals **2025**, *18*(1), 83; **https://doi.org/10.3390/ph18010083 (https://doi.org/10.3390/ph18010083)** - 11 Jan 2025

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Abstract Background: In the era of resistance, the design and search for new “small” molecules with a narrow spectrum of activity that target a protein or enzyme specific to a certain bacterium with high selectivity and minimal side effects remains an urgent problem of **[...] Read more.**

(This article belongs to the Section **Biopharmaceuticals (/journal/pharmaceuticals/sections/biopharmaceuticals)**)

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Open Access Article 17 pages, 2856 KiB (/1424-8247/18/1/82/pdf?version=1736586981)

Etodolac Single Dose Metabolic Profile Elucidation: Pharmacokinetics and Adverse Events in Healthy Volunteers (/1424-8247/18/1/82)

by **Karen Sánchez-Luquez**, **Anne Michelli Reis Silveira**, **Salvador Sánchez-Vinces**, **Alex Ap. Rosini Silva**, **Joyce Barreto**, **Rhubia Bethania Socorro Lemos de Brito**, **Caroline de Moura Garcia**, **Ana Lais Vieira**, **Marcia Ap. Antonio** and **Patrícia de Oliveira Carvalho**

Pharmaceuticals **2025**, *18*(1), 82; https://doi.org/10.3390/ph18010082 (https://doi.org/10.3390/ph18010082) - 11 Jan 2025
Viewed by 1761

Abstract Background/Objectives: This study investigates the metabolic profile of a single dose of etodolac in healthy volunteers, focusing on pharmacokinetics, clinical parameters, and metabolomic variations to identify biomarkers and pathways linked to drug response, efficacy, and safety. Methods: Thirty-seven healthy volunteers, enrolled after rigorous **[...] Read more.**

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Open Access Editor's Choice Review

Antibiotic Resistance of *Staphylococcus aureus* Strains—Searching for New Antimicrobial Agents—Revie 24-8247/18/1/81)

by **Michał Michalik**, **Adrianna Podbielska-Kubera** and **Agnieszka Dmowska-Koroblewska**

Pharmaceuticals **2025**, *18*(1), 81; **https://doi.org/10.3390/ph18010081 (https://doi.org/10.3390/ph18010081)** - 11 Jan 2025

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Abstract Inappropriate and excessive use of antibiotics is responsible for the rapid development of antimicrobial resistance, which is associated with increased patient morbidity and mortality. There is an urgent need to explore new antibiotics or alternative antimicrobial agents. *S. aureus* a commensal microorganism but **[...] Read more.**

(This article belongs to the Section **Pharmacology (/journal/pharmaceuticals/sections/pharm-pharmacology)**)

Open Access Systematic Review 20 pages, 428 KiB **(/1424-8247/18/1/80/pdf?version=1736515005)**

Real-Time Pharmacovigilance: Transforming Population-Based Monitoring of Post-Approval Vaccine Safety Through Rapid Cycle Analysis (RCA)—A Review of the Published Literature (/1424-8247/18/1/80)

by **Sampada Gandhi**, **Michelle R. Iannacone**, **Andrea Leapley**, **Li Wang**, **Mwedusasa Mtenga**, **Muhammad Younus** and **Joanne Wu**

Pharmaceuticals **2025**, *18*(1), 80; **https://doi.org/10.3390/ph18010080 (https://doi.org/10.3390/ph18010080)** - 10 Jan 2025

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Abstract Background/Objectives: Rapid cycle analysis (RCA) is an established and efficient methodology that has been traditionally utilized by United States health authorities to monitor post-approval vaccine safety. Initially developed in the Vaccine Safety Datalink (VSD) in early 2000s, RCA has evolved into a **[...] Read more.**

(This article belongs to the Special Issue **Pharmacoepidemiology and Pharmacovigilance in Drug Therapy: New Issues, Challenges, and Applications (/journal/pharmaceuticals/special_issues/H6354F14N8)**)

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Open Access Article 11 pages, 2742 KiB **(/1424-8247/18/1/79/pdf?version=1736524399)**

Rhoifolin Suppresses Cell Proliferation and Induces Apoptosis in Hepatocellular Carcinoma Cells In Vitro and In Vivo (/1424-8247/18/1/79)

by **Ruolan Chen**, **Zufa Sabeel**, **Lu Ying**, **Youfeng Liang**, **Rui Guo**, **Mingxuan Hao**, **Xiaoyang Chen**, **Wenjing Zhang**, **Jian Dong**, **Yan Liu**, **Changyuan Yu** and **Zhao Yang**

Pharmaceuticals **2025**, *18*(1), 79; **https://doi.org/10.3390/ph18010079 (https://doi.org/10.3390/ph18010079)** - 10 Jan 2025

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Abstract Background: Hepatocellular carcinoma (HCC) is the most prevalent malignant tumor, ranking fifth in terms of fatality with poor prognosis and a low survival rate. Rhoifolin (ROF), a flavonoid constituent,

has previously been shown to suppress the proliferation of breast and pancreatic cancer cells. **[...] Read more.**

(This article belongs to the Special Issue **Exploring Natural Products with Antioxidant and Anticancer Properties (/journal/pharmaceuticals/special_issues/8DAUFLA964)**)

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Open Access Review 21 pages, 634 KiB **(/1424-8247/18/1/78/pdf?version=1736511095)**

Advancing Therapeutic Targets in IBD: Emerging Goals and Precision Medicine Approaches (/1424-8247/18/1/78)

by **Lucia Centanni**, **Clelia Cicerone**, **Fabrizio Fanizzi**, **Ferdinando D'Amico**, **Federica Furfaro**, **Alessandra Zilli**, **Tommaso Lorenzo Parigi**, **Laurent Peyrin-Biroulet**, **Silvio Danese** and **Mariangela Allocca**

Pharmaceuticals **2025**, *18*(1), 78; **https://doi.org/10.3390/ph18010078 (https://doi.org/10.3390/ph18010078)** - 10 Jan 2025

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Abstract Inflammatory bowel diseases (IBD) including Crohn's disease (CD) and ulcerative colitis (UC) are chronic, relapsing conditions characterized by dysregulated immune responses and persistent intestinal inflammation. This review aims to examine new potential therapeutic targets in IBD starting from the STRIDE-II statements. Key targets **[...] Read more.**

(This article belongs to the Special Issue **Pharmacotherapy of Inflammatory Bowel Disease (/journal/pharmaceuticals/special_issues/1J18HV7EYM)**)

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Open Access Article 19 pages, 4054 KiB (/1424-8247/18/1/77/pdf?version=1736502569)

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Salt Stress Enhanced Bioactivity of Quinoa Leaf Extracts: An In Vitro and In Silico Study of Acetylcholinesterase and Tyrosinase Inhibition for Sustainable Drug Development (/1424-8247/18/1/77)

by **Narmine Slimani**, **Soumaya Arraouadi**, **Hafedh Hajlaoui**, **Antonio Cid-Samamed**, **Mohamed Ali Borgi** and **Mejdi Snoussi**

Pharmaceuticals **2025**, *18*(1), 77; https://doi.org/10.3390/ph18010077 (https://doi.org/10.3390/ph18010077) - 10 Jan 2025

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Abstract Background: Quinoa is recognized for its nutritional and pharmacological properties. This study aims to investigate the impact of salt stress induced by varying concentrations of sodium chloride (NaCl) on the production of phenolic compounds and their biological activities in different quinoa accessions. **Method:** **[...] Read more.**

(This article belongs to the Special Issue **Plant-Based Extracts and the Therapeutic Potential of Bioactive Compounds (/journal/pharmaceuticals/special_issues/81GJ21Y54D)**)

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Open Access Article 18 pages, 4829 KiB (/1424-8247/18/1/76/pdf?version=1736504599)

Identification of Two Flavonoids as New and Safe Inhibitors of Kynurenine Aminotransferase II via Computational and In Vitro Study (/1424-8247/18/1/76)

by **Re ne Rebai**, **Luc Jasmin** and **Abdennacer Boudah**

Pharmaceuticals **2025**, *18*(1), 76; https://doi.org/10.3390/ph18010076 (https://doi.org/10.3390/

ph18010076) - 10 Jan 2025
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Abstract **Background/Objectives:** Kynurenine aminotransferase II (KAT-II) is a target for treating several diseases characterized by an excess of kynurenic acid (KYNA). Although KAT-II inactivators are available, they often lead to adverse side effects due to their irreversible inhibition mechanism. This study aimed to identify **[...] Read more.**

(This article belongs to the Special Issue **Plant-Derived Natural Compounds as Bioactive Molecules with Beneficial Effects on Human Health (/journal/pharmaceuticals/special_issues/AMEJ74YTYI)**)

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Open Access Review 38 pages, 4132 KiB **(/1424-8247/18/1/75/pdf?version=1736843374)**

Leveraging Single-Cell Multi-Omics to Decode Tumor Microenvironment Diversity and Therapeutic Resistance (/1424-8247/18/1/75)

by **Hussein Sabit**, **Borros Arneth**, **Timothy M. Pawlik**, **Shaimaa Abdel-Ghany**, **Aysha Ghazy**, **Rawan M. Abdelazeem**, **Amany Alqosaibi**, **Ibtesam S. Al-Dhuayan**, **Jawaher Almulhim**, **Noof A. Alrabiah** and **Ahmed Hashash**

Pharmaceuticals **2025**, *18*(1), 75; **https://doi.org/10.3390/ph18010075 (https://doi.org/10.3390/ph18010075)** - 10 Jan 2025
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Abstract Recent developments in single-cell multi-omics technologies have provided the ability to identify diverse cell types and decipher key components of the tumor microenvironment (TME), leading to important advancements toward a much deeper understanding of how tumor microenvironment heterogeneity contributes to cancer progression and **[...] Read more.**

(This article belongs to the Special Issue **Tumor Immunopharmacology (/journal/pharmaceuticals/special_issues/IRV09E494R)**)

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Open Access Article 15 pages, 893 KiB **(/1424-8247/18/1/74/pdf?version=1736744126)**

Positive Correlation Between Serum Limonene Levels and Muscle Health in a Representative Adult Population in the United States (/1424-8247/18/1/74)

by **Chang-Chin Wu**, **Yu-Wei Fang**, **Chikang Wang** and **Chien-Yu Lin**

Pharmaceuticals **2025**, *18*(1), 74; **https://doi.org/10.3390/ph18010074 (https://doi.org/10.3390/ph18010074)** - 10 Jan 2025

Viewed by 963

Abstract Background/Objectives: Monoterpenes, a class of organic compounds with the molecular formula $C_{10}H_{16}$, have garnered significant attention for their potential medicinal benefits. Emerging evidence suggests they may positively influence skeletal muscle function. However, the impact of monoterpene exposure on muscle **[...] Read more.**

(This article belongs to the Section **Pharmacology (/journal/pharmaceuticals/sections/pharm-pharmacology)**)

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Open Access Article 18 pages, 7657 KiB (/1424-8247/18/1/73/pdf?version=1736508851)

Optimization and Evaluation of *Cannabis*-Based Magistral Formulations: A Path to Personalized Therapy (/1424-8247/18/1/73)

by **Bożena Grimling**, **Magdalena Fast**, **Magdalena Okoniewska**, **Artur Owczarek** and **Bożena Karolewicz**

Pharmaceuticals **2025**, *18*(1), 73; **https://doi.org/10.3390/ph18010073 (https://doi.org/10.3390/ph18010073)** - 9 Jan 2025
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Abstract Introduction: The official implementation of pharmaceutical-grade cannabis raw materials for medicinal use has permitted doctors to prescribe and pharmacists to prepare cannabis-based formulations. The objective of the pharmaceutical development and manufacturing process optimization work was to propose a suppository formulation containing doses of **[...] Read more.**

(This article belongs to the Special Issue **Current Therapies for Endometriosis, Adenomyosis and Endometrial Cancer (/journal/pharmaceuticals/special_issues/V5QWU6H0G0)**)

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Open Access Review 23 pages, 3865 KiB (/1424-8247/18/1/72/pdf?version=1736420542)

From Infection to Tumor: Exploring the Therapeutic Potential of Ciprofloxacin Derivatives as Anticancer Agents (/1424-8247/18/1/72)

by **Hesham M. Hassan**, **Roket Hassan**, **Ranya Mohammed Elmagzoub**, **Ahmed Al-Emam**, **Konstantinos Kossenas**, **Ahmed S. Abdel-Samea**, **Hazim O. Khalifa**, **Suleyman Akocak**, **Stefan [illegible]se** and **Hamada Hashem**

Pharm[illegible]ticals **2025**, *18*(1), 72; **https://doi.org/10.3390/ph18010072 (https://doi.org/10.3390/ph18010072)** - 9 Jan 2025

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Abstract Ciprofloxacin, a widely used second-generation fluoroquinolone for treating bacterial infections, has recently shown notable anticancer properties. This review explores progress in developing ciprofloxacin derivatives with anticancer properties, emphasizing key structural changes that improve their therapeutic effectiveness by modifying the basic group at position **[...] Read more.**

(This article belongs to the Special Issue **Novel Anti-proliferative Agents, 2nd Edition (/journal/pharmaceuticals/special_issues/HW308JYK9K)**)

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Open Access Article 15 pages, 3427 KiB **(/1424-8247/18/1/71/pdf?version=1736419219)**

Gedunin Mitigates *Cutibacterium acnes*-Induced Skin Inflammation by Inhibiting the NF-κB Pathway (/1424-8247/18/1/71)

by **Ju Kyoung Sim**, **Ye Ji Heo**, **Jin Hak Shin**, **Seon Sook Kim** and **Su Ryeon Seo**

Pharmaceuticals **2025**, *18*(1), 71; **https://doi.org/10.3390/ph18010071 (https://doi.org/10.3390/ph18010071)** - 9 Jan 2025

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Abstract **Background/Objectives**: *Cutibacterium acnes (C. acnes)*, a bacterium residing in hair follicles, triggers acne by inducing monocyte-mediated inflammatory cytokine production. Gedunin, a limonoid derived from *Azadirachta indica* (commonly known as neem), is renowned for its antifungal, antimalarial, anticancer, anti-inflammatory, and neuroprotective effects. **[...] Read more.**

(This article belongs to the Section **Pharmacology (/journal/pharmaceuticals/sections/pharm-pharmacology)**)

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Open Access Review 32 pages, 4126 KiB (/1424-8247/18/1/70/pdf?version=1736426084)

Targeting the Heart of Mycobacterium: Advances in Anti-Tubercular Agents Disrupting Cell Wall Biosynthesis (/1424-8247/18/1/70)

by **Ahmad Diab**, **Henry Dickerson** and **Othman Al Musaimi**

Pharmaceuticals **2025**, *18*(1), 70; https://doi.org/10.3390/ph18010070 (https://doi.org/10.3390/ph18010070) - 9 Jan 2025
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Abstract *Mycobacterium tuberculosis* infections continue to pose a significant global health challenge, particularly due to the rise of multidrug-resistant strains, random mycobacterial mutations, and the complications associated with short-term antibiotic regimens. Currently, five approved drugs target cell wall biosynthesis in *Mycobacterium tuberculosis*. This **[...] Read more.**

(This article belongs to the Special Issue **Advances in Drug Analysis and Drug Development (/journal/pharmaceuticals/special_issues/1QF90ZP65X)**)

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Polyphenolic Compounds in Fabaceous Plants with Antidiabetic Potential (/1424-8247/18/1/69)

by **Lucia Guerrero-Becerra**, **Sumiko Morimoto**, **Estefania Arrellano-Ordoñez**, **Angélica Morales-Miranda**, **Ramón G. Guevara-Gonzalez**, **Ana Angélica Feregrino-Pérez** and **Consuelo Lomas-Soria**

Pharmaceuticals **2025**, *18*(1), 69; https://doi.org/10.3390/ph18010069 (https://doi.org/10.3390/ph18010069) - 9 Jan 2025

Abstract Diabetes mellitus (DM) is a chronic non-communicable disease with an increasing prevalence in Latin America and worldwide, impacting various social and economic areas. It causes numerous complications for those affected. Current treatments for diabetes include oral hypoglycemic drugs, which can lead to adverse **[...] Read more.**

(This article belongs to the Special Issue **Natural Products in Diabetes Mellitus: 2nd Edition (/journal/pharmaceuticals/special_issues/HQ36LD85MX)**)

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Open Access Article 27 pages, 11204 KiB (/1424-8247/18/1/68/pdf?version=1736481510)

Lucidin from *Rubia cordifolia* Outperforms FDA-Approved Lapatinib as a Potential Multitargeted Candidate for Breast Cancer Signalling Proteins (/1424-8247/18/1/68)

by **Akram Ahmed Aloqbi**, **Hadil Alahdal**, **Amany I. Alqosaibi**, **Mashael M. Alnamshan**, **Ibtesam S. Al-Dhuayan**, **Ahood A. Al-Eidan**, **Hind A. S. Alzahrani**, **Nouf K. ALaqeel**, **Fatmah Hazza Alsharif** and **Abeer Al Tuwaijri**

Pharmaceuticals **2025**, *18*(1), 68; https://doi.org/10.3390/ph18010068 (https://doi.org/10.3390/ph18010068) - 9 Jan 2025

Abstract Background: Breast cancer remains a significant global health concern, with approximately 2.3 million diagnosed cases and 670,000 deaths annually. Current targeted therapies face challenges such as resistance and adverse side effects. This study aimed to explore natural compounds as potential multitargeted breast cancer **[...] Read more.**

(This article belongs to the Section **Pharmacology (/journal/pharmaceuticals/sections/pharm-pharmacology)**)

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Open Access Article 15 pages, 3447 KiB (/1424-8247/18/1/67/pdf?version=1736414773)

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Therapeutic Potential of *Cajanus cajan* (L.) *Millsp.* Leaf Extract in Modulating Gut Microbiota and Immune Response for the Treatment of Inflammatory Bowel Disease (/1424-8247/18/1/67)

by **Mingzhang Lin**, **Linghua Piao**, **Zhendong Zhao**, **Li Liao**, **Dayong Wang**, **Haiwen Zhang** and **Xiande Liu**

Pharmaceuticals **2025**, *18*(1), 67; https://doi.org/10.3390/ph18010067 (https://doi.org/10.3390/ph18010067) - 9 Jan 2025

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Abstract Background/Objectives: Inflammatory bowel disease (IBD) is a persistent inflammatory condition affecting the gastrointestinal tract, distinguished by the impairment of the intestinal epithelial barrier, dysregulation of the gut microbiota, and abnormal immune responses. *Cajanus cajan* (L.) *Millsp.*, traditionally used in Chinese herbal medicine **[...] Read more.**

(This article belongs to the Section **Natural Products (/journal/pharmaceuticals/sections/natural_products)**)

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Open Access Article 11 pages, 2023 KiB (/1424-8247/18/1/66/pdf?version=1736412447)

Utilisation of the Innovative [18F]-Labelled Radiotracer [18F]-BIBD-071 Within HR+ Breast Cancer Xenograft Mouse Models (/1424-8247/18/1/66)

by **Di Fan**, **Xin Wang**, **Xueyuan Ling**, **Hongbin Li**, **Lu Zhang**, **Wei Zheng**, **Zehui Wu** and **Lin Ai**

Pharmaceuticals **2025**, *18*(1), 66; https://doi.org/10.3390/ph18010066 (https://doi.org/10.3390/ph18010066) - 9 Jan 2025

Viewe 1006

Abstra Background/Objectives: Aromatase plays a crucial role in the conversion of androgens to oestrogens and is often overexpressed in hormone-dependent tumours, particularly breast cancer.

[18F]BIBD-071, which has excellent binding affinity for aromatase and good pharmacokinetics, has potential for the diagnosis and treatment of aromatase-related **[...] Read more.**

(This article belongs to the Special Issue **PET and SPECT Molecular Imaging in Drug Development (/journal/pharmaceuticals/special_issues/965212NBNL)**)

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Open Access Article 20 pages, 64752 KiB **(/1424-8247/18/1/65/pdf?version=1737594001)**

In Vivo Assessment of Healing Potential of Ointments Containing Bee Products, Vegetal Extracts, and Polymers on Skin Lesions (/1424-8247/18/1/65)

by **Calin Vasile Andritoiu**, **Cristina Lungu**, **Camelia Elena Iurciuc (Tincu)**, **Corina Elena Andriescu**, **Corneliu Havarneanu**, **Marcel Popa**, **Magdalena Cuciureanu**, **Liliana Mititelu Tarţău** and **Bianca Ivanescu**

Pharmaceuticals **2025**, *18*(1), 65; **https://doi.org/10.3390/ph18010065 (https://doi.org/10.3390/ph18010065)** - 9 Jan 2025

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Abstract Background/Objectives: The present experiment aimed to formulate four ointments that included mixtures of plant extracts (*Hippophae rhamnoides*, *Calendula officinalis*, *Arctium lappa*, and *Achillea millefolium*), apitherapy products (honey, propolis, and apilarnil) and natural polymers (collagen, chitosan, and the lyophilisate **[...] Read more.**

(This article belongs to the Special Issue **Therapeutic Potential of Bee Products (/journal/pharmaceuticals/special_issues/00426JW81R)**)

Open Access Review 26 pages, 2072 KiB **(/1424-8247/18/1/64/pdf?version=1736397833)**

Distribution, Phytochemical Insights, and Cytotoxic Potential of the *Sesbania* Genus: A Comprehensive Review of *Sesbania grandiflora*, *Sesbania sesban*, and *Sesbania cannabina* (/1424-8247/18/1/64)

by **Fatma Alzahraa Mokhtar**, **Mariam Ahmed**, **Aishah Saeed Al Dhanhani**, **Serag Eldin I. Elbehairi**, **Mohammed Y. Alfaifi**, **Ali A. Shati** and **Amal M. Fakhry**

Pharmaceuticals **2025**, *18*(1), 64; **https://doi.org/10.3390/ph18010064 (https://doi.org/10.3390/ph18010064)** - 9 Jan 2025

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Abstract This review evaluates the cytotoxic potential of the *Sesbania* genus, with a focus on *Sesbania sesban*, *Sesbania grandiflora*, and *Sesbania cannabina*. These species, known for their diverse phytochemical compositions, exhibit notable cytotoxic effects that suggest their utility in natural cancer **[...] Read more.**

(This article belongs to the Special Issue **Natural Compounds as Potential Anticancer, Anti-inflammatory and Antioxidant Agents in Medicine (/journal/pharmaceuticals/special_issues/KMWBZAJ3J6)**)

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Open Access Article 28 pages, 6544 KiB **(/1424-8247/18/1/63/pdf?version=1736762326)**

Ruthenium(II) Complex with 1-Hydroxy-9,10-Anthraquinone Inhibits Cell Cycle Progression at G0/G1 and Induces Apoptosis in Melanoma Cells (/1424-8247/18/1/63)

by **Júlia S. M. Dias**, **Guilherme A. Ferreira-Silva**, **Rommel B. Viana**, **João H. de Araujo Neto**, **Javier Ellena**, **Rodrigo S. Corrêa**, **Marília I. F. Barbosa**, **Marisa Ionta** and **Antônio C. Doriguetto**

Pharmaceuticals **2025**, *18*(1), 63; **https://doi.org/10.3390/ph18010063 (https://doi.org/10.3390/ph18010063)** - 8 Jan 2025

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Abstract Background: Melanoma is the most aggressive and lethal skin cancer that affects thousands of people worldwide. Ruthenium complexes have shown promising results as cancer chemotherapeutics, offering several advantages over platinum drugs, such as potent efficacy, low toxicity, and less drug resistance. Additionally, anthraquinone **[...] Read more.**

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Open Access Review 47 pages, 2500 KiB (/1424-8247/18/1/62/pdf?version=1736342341)

Facilitation of Tumor Stroma-Targeted Therapy: Model Difficulty and Co-Culture Organoid Method (/1424-8247/18/1/62)

by **Qiu-Shi Feng**, **Xiao-Feng Shan**, **Vicky Yau**, **Zhi-Gang Cai** and **Shang Xie**

Pharmaceuticals **2025**, *18*(1), 62; https://doi.org/10.3390/ph18010062 (https://doi.org/10.3390/ph18010062) - 8 Jan 2025

Cited by 2 (/1424-8247/18/1/62#metrics) | Viewed by 2168

Abstract Background: Tumors, as intricate ecosystems, comprise oncocytes and the highly dynamic tumor stroma. Tumor stroma, representing the non-cancerous and non-cellular composition of the tumor microenvironment (TME), plays a crucial role in oncogenesis and progression, through its interactions with biological, chemical, and mechanical signals. **[...] Read more.** (/toggle_desktop_layout_cookie)
(This article belongs to the Special Issue **Therapeutic Targets and Therapies for the Treatment of Oral Cancer and Oral Diseases (/journal/pharmaceuticals/special_issues/6C005W7659)**)

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Open Access Review 25 pages, 1034 KiB (/1424-8247/18/1/61/pdf?version=1736330109)

Hormonal Contraception and Bone Metabolism: Emerging Evidence from a Systematic Review and Meta-Analysis of Studies on Post-Pubertal and Reproductive-Age Women (/1424-8247/18/1/61)

by **Alice Tassi**, **Ambrogio P Londero**, **Anjeza Xholli**, **Giulia Lanzolla**, **Serena Bertozzi**, **Luca Savelli**, **Federico Prefumo** and **Angelo Cagnacci**

Pharmaceuticals **2025**, *18*(1), 61; **https://doi.org/10.3390/ph18010061 (https://doi.org/10.3390/ph18010061)** - 8 Jan 2025

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Abstract Background/Objectives: This study aims to assess the effects of combined hormonal contraceptives (CHCs) on bone metabolism markers. It primarily measures osteocalcin and additionally examines other bone health markers, seeking to determine their responses to estrogen–progestogen treatments. Methods: This study involved a comprehensive evaluation **[...] Read more.**

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Open Access Article 10 pages, 1294 KiB (/1424-8247/18/1/60/pdf?version=1736760999)

Preliminary Study by Differential Scanning Calorimetric Analysis of Red Blood Cells in Peripheral Artery Disease Patients Treated with Cilostazol: Correlation with Improvements in Walking Distance (/1424-8247/18/1/60)

by **Dénes Lőrinczy**, **Dorottya Szabó** and **László Benkő**

Pharmaceuticals **2025**, *18*(1), 60; **https://doi.org/10.3390/ph18010060 (https://doi.org/10.3390/ph18010060)** - 7 Jan 2025
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Abstract Objective: Peripheral artery disease (PAD) is a prevalent vascular condition characterized by arterial narrowing, which impairs blood flow and manifests as intermittent claudication, a pain or cramping sensation induced by physical activity or ambulation. Walking distance is a crucial clinical indicator of **[...] Read more.**
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Open Access Article 13 pages, 2914 KiB **(/1424-8247/18/1/59/pdf?version=1736420134)**

Development of Ketoprofen Impurity A (1-(3-Benzoylphenyl)ethanone) as a Certified Reference Material for Pharmaceutical Quality Control (/1424-8247/18/1/59)

by **Nikolay A. Shulga**, **Vladimir I. Gegechkori**, **Natalya V. Gorpinchenko**, **Valery V. Smirnov**, **Sergey P. Dementyev** and **Galina V. Ramenskaya**
Pharmaceuticals **2025**, *18*(1), 59; **https://doi.org/10.3390/ph18010059 (https://doi.org/10.3390/ph18010059)** - 7 Jan 2025
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Abstract Background/Objectives: Reference materials are essential for ensuring the accuracy and traceability of measurements in the quality control of medicinal products. This study explores new principles for the preparation of impure materials of active pharmaceutical substances, focusing on 1-(3-benzoylphenyl)ethanone ketoprofen impurity A (**[...] Read more.**
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Open Access Review 37 pages, 5484 KiB (/1424-8247/18/1/58/pdf?version=1736241175)

Current Insight of Peptide-Based Hydrogels for Chronic Wound Healing Applications: A Concise Review (/1424-8247/18/1/58)

by **Aifa Asyhira Khairul Nizam**, **Syafira Masri**, **Nur Izzah Md Fadilah**, **Manira Maarof** and **Mh Busra Fauzi**

Pharmaceuticals **2025**, *18*(1), 58; https://doi.org/10.3390/ph18010058 (https://doi.org/10.3390/ph18010058) - 7 Jan 2025
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Abstract Chronic wounds present a substantial healthcare obstacle, marked by an extended healing period that can persist for weeks, months, or even years. Typically, they do not progress through the usual phases of healing, which include hemostasis, inflammation, proliferation, and remodeling, within the expected **[...]** **Read more.**

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Open Access Article 29 pages, 5224 KiB (/1424-8247/18/1/57/pdf?version=1736238891)

Optimization of the Antibacterial Activity of a Three-Component Essential Oil Mixture from Moroccan *Thymus satureioides*, *Lavandula angustifolia*, and *Origanum majorana* Using a Simplex–Centroid Design (/1424-8247/18/1/57)

by **Amine Elbouzidi**, **Mohamed Taibi**, **Naoufal El Hachlafi**, **Mounir Haddou**, **Mohamed Jeddi**, **Abdellah Baraich**, **Saad Bougrine**, **Ramzi A. Mothana**, **Mohammed F. Hawwal**, **Waleed A. Alobaid**, **Abdeslam Asehraou**, **Bouchra El Guerrouj**, **Hanae Naceiri Mrabti**, **Francois Mesnard** and **Mohamed Addi**

Pharmaceuticals **2025**, *18*(1), 57; **https://doi.org/10.3390/ph18010057 (https://doi.org/10.3390/ph18010057)** - 7 Jan 2025

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Abstract Background/Objectives: The rise of antibiotic-resistant pathogens has become a global health crisis, necessitating the development of alternative antimicrobial strategies. This study aimed to optimize the antibacterial effects of essential oils (EOs) from *Thymus satureioides*, *Lavandula angustifolia*, and *Origanum majorana*, enhancing their **[...] Read more.**

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Open Access Review 37 pages, 2634 KiB (/1424-8247/18/1/56/pdf?version=1736216462)

The Potential Application of Nanocarriers in Delivering Topical Antioxidants (/1424-8247/18/1/56)

by **Zulfan Zazuli**, **Rika Hartati**, **Cornelia Rosasepti Rowa**, **Sukmadjaja Asyarie** and **Satrialdi**

Pharmaceuticals **2025**, *18*(1), 56; **https://doi.org/10.3390/ph18010056 (https://doi.org/10.3390/ph18010056)** - 6 Jan 2025

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Abstract The imbalance in the production of reactive oxygen species (ROS) with endogenous antioxidant capacity leads to oxidative stress, which drives many disorders, especially in the skin. In such conditions, supplementing exogenous antioxidants may help the body prevent the negative effect of ROS. However, **[...] Read more.**

(This article belongs to the Special Issue **Plant-Derived Nanotherapeutics and Nanocarriers: Recent Progress and Future Directions (/journal/pharmaceuticals/special_issues/H9DNPMOE54)**)

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Open Access Review 33 pages, 2821 KiB (/1424-8247/18/1/55/pdf?version=1736155134)

The Gut Microbiota-Related Antihyperglycemic Effect of Metformin (/1424-8247/18/1/55)

by **Izabela Szymczak-Pajor**, **Józef Drzewoski**, **Małgorzata Kozłowska**, **Jan Krekora** and **Agnieszka Śliwińska**

Pharmaceuticals **2025**, *18*(1), 55; **https://doi.org/10.3390/ph18010055 (https://doi.org/10.3390/ph18010055)** - 6 Jan 2025

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Abstract It is critical to sustain the diversity of the microbiota to maintain host homeostasis and health. Growing evidence indicates that changes in gut microbial biodiversity may be associated with the development of several pathologies, including type 2 diabetes mellitus (T2DM). Metformin is still **[...] Read more.**

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Open Access Article 23 pages, 3793 KiB (/1424-8247/18/1/54/pdf?version=1736147890)

Comparative Analysis of the Enzymatic, Coagulant, and Neuromuscular Activities of Two Variants of *Crotalus durissus ruruima* Venom and Antivenom Efficacy (/1424-8247/18/1/54)

by **Poliana J. Demico**, **Isabele N. Oliveira**, **Vitória S. Proença-Hirata**, **Samuel R. Dias**, **Hugo A. Ghirotti**, **Elisangela O. Silva**, **Inês C. Giometti**, **Francis L. Pacagnelli**, **Kristian A. Torres-Bonilla**, **Stephen Hyslop**, **Nathália C. Galizio**, **Karen de Morais-Zani**, **Manuela B. Pucca**, **Anderson M. Rocha**, **Jéssica B. Maciel**, **Marco A. Sartim**, **Wuelton M. Monteiro** and **Rafael S. Floriano**

Pharmaceuticals **2025**, *18*(1), 54; **https://doi.org/10.3390/ph18010054 (https://doi.org/10.3390/ph18010054)** - 6 Jan 2025

Viewe 3276

Abstract Background: We compared the enzymatic, coagulant, and neuromuscular activities of two

variants (yellow—CDRy and white—CDRw) of *Crotalus durissus ruruima* venom with a sample of *C. d. terrificus* (CDT) venom and examined their neutralization by antivenom against CDT venom. **Methods:** The venoms were screened **[...] Read more.**

(This article belongs to the Special Issue **Neuromuscular Disorders: Current Gene and Cell Therapeutic Approaches (/journal/pharmaceuticals/special_issues/ND_Therapy)**)

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Open Access Editor's Choice Article 17 pages, 9958 KiB **(/1424-8247/18/1/53/pdf?version=1736086814)**

Spinorphin Molecules as Opportunities for Incorporation into Spinorphin@AuNPs Conjugate Systems for Potential Sustained Targeted Delivery to the Brain (/1424-8247/18/1/53)

by **Stela Georgieva**, **Petar Todorov** and **Jana Tchekalarova**

Pharmaceuticals **2025**, *18*(1), 53; **https://doi.org/10.3390/ph18010053 (https://doi.org/10.3390/ph18010053)** - 5 Jan 2025

Viewed by 2028

Abstract Background: This study explores the potential for the synthesis of peptide nanosystems comprising spinorphin molecules (with rhodamine moiety: Rh-S, Rh-S5, and Rh-S6) conjugated with nanoparticles (AuNPs), specifically peptide Rh-S@AuNPs, peptide Rh-S5@AuNPs, and peptide Rh-S6@AuNPs, alongside a comparative analysis of the biological activities of **[...] Read more.**

(This article belongs to the Special Issue **Peptide Drug Conjugates and Their Applications (/journal/pharmaceuticals/special_issues/JRN6354R38)**)

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Open Access Article 27 pages, 5828 KiB (/1424-8247/18/1/52/pdf?version=1735985568)

Thiazolidine-4-One Derivatives with Variable Modes of Inhibitory Action Against DPP4, a Drug Target with Multiple Activities and Established Role in Diabetes Mellitus Type II (/1424-8247/18/1/52)

by **Dionysia Amanatidou**, **Phaedra Eleftheriou**, **Anthi Petrou**, **Athina Geronikaki** and **Theodoros Lialiaris**

Pharmaceuticals **2025**, *18*(1), 52; **https://doi.org/10.3390/ph18010052 (https://doi.org/10.3390/ph18010052)** - 4 Jan 2025

Abstract Background/Objectives: DPP4 is an enzyme with multiple natural substrates and probable involvement in various mechanisms. It constitutes a drug target for the treatment of diabetes II, although, also related to other disorders. While a number of drugs with competitive inhibitory action and covalent **[...]** **Read more.**

(This article belongs to the Special Issue **Enzyme Inhibitors: Potential Therapeutic Approaches (/journal/pharmaceuticals/special_issues/L81E2M3UHF)**)

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Open Access Article 17 pages, 3109 KiB (/1424-8247/18/1/51/pdf?version=1737104164)

Structural Characterizations and Biological Evaluation of a Natural Polysaccharide from Branches of *Camellia oleifera* Abel (/1424-8247/18/1/51)

by **Shengjia Lu**, **Yali Zhang**, **Yanghui Ou**, **Jianghui Xin**, **Hongliang Yao** and **Litao Guan**

Pharmaceuticals **2025**, *18*(1), 51; https://doi.org/10.3390/ph18010051 (https://doi.org/10.3390/ph18010051) - 3 Jan 2025

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Abstract Background: *Camellia oleifera* Abel (*C. oleifera*) is widely cultivated and serves as an important source of edible oil. Yet, during oil production, pruned branches generate significant waste and contribute to environmental pollution. Objectives: In this work, we obtain a natural polysaccharide **[...] Read more.**

(This article belongs to the Section **Natural Products (/journal/pharmaceuticals/sections/natural_products)**)

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Open Access Article 16 pages, 2045 KiB (/1424-8247/18/1/50/pdf?version=1735912587)

Identification of a New Pentafluorosulfanyl-Substituted Chalcone with Activity Against Hepatoma and Human Parasites (/1424-8247/18/1/50)

by **Alessandra Viperino**, **Michael Höpfner**, **Nicole Edel**, **Ibrahim S. Al Nasr**, **Waleed S. Koko**, **Tariq A. Khan**, **Imen Ben Abdelmalek**, **Rainer Schobert**, **Bernhard Biersack** and **Bianca Nitzsche**

Pharmaceuticals **2025**, *18*(1), 50; https://doi.org/10.3390/ph18010050 (https://doi.org/10.3390/ph18010050) - 3 Jan 2025

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Abstract Background/Objectives: New drugs are required for the treatment of liver cancers and protozoal parasite infections. Analogs of the known anticancer active and antileishmanial 2′,4′,6′-trimethoxychalcone SU086 were prepared and investigated. Methods: The chalcones were prepared according to the Claisen–Schmidt condensation protocol and analyzed. They **[...] Read more.**

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Open Access Article 15 pages, 2575 KiB (/1424-8247/18/1/49/pdf?version=1736151165)

Antidepressant- and Anxiolytic-like Effects in Mice of Alkaloids from Aerial Parts of *Argemone platyceras* Link & Otto (/1424-8247/18/1/49)

by **Mayra Beatriz Gómez-Patiño**, **Rosa Estrada-Reyes**, **Héctor Hugo Hernández-Mendoza**, **Ángela Suarez-Rojas** and **Daniel Arrieta-Baez**

Pharmaceuticals **2025**, *18*(1), 49; **https://doi.org/10.3390/ph18010049 (https://doi.org/10.3390/ph18010049)** - 3 Jan 2025
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Abstract Background/Objectives: *Argemone platyceras* Link & Otto, an endemic plant of Mexico, is widely distributed in the central area of the country, mainly in the states of Tlaxcala, Puebla, and the State of Mexico. Ethnobotanical studies in different communities of these states have **[...] Read more.**
(This article belongs to the Special Issue **Neuropharmacology of Plant Extracts and Their Active Compounds (/journal/pharmaceuticals/special_issues/U6W377Y3N0)**)

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Open Access Review 47 pages, 1168 KiB (/1424-8247/18/1/48/pdf?version=1735903705)

Pharmaceutical Humanities and Narrative Pharmacy: An Emerging New Concept in Pharmacy (/1424-8247/18/1/48)

by **Mita Banerjee** and **Thomas Efferth**

Pharmaceuticals **2025**, *18*(1), 48; **https://doi.org/10.3390/ph18010048 (https://doi.org/10.3390/ph18010048)** - 3 Jan 2025
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Abstract The complexity of our life experiences and the rapid progress in science and technology clearly necessitate reflections from the humanities. The ever-growing intersection between science and society foster emergence of novel interdisciplinary fields of research. During the past decade, Medical Humanities arose **[...] Read more.**
(This article belongs to the Special Issue **Feature Reviews in Natural Products (/journal/**

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Open Access Review 36 pages, 10299 KiB (/1424-8247/18/1/47/pdf?version=1735896198)

Harnessing the AI/ML in Drug and Biological Products Discovery and Development: The Regulatory Perspective (/1424-8247/18/1/47)

by **Fahimeh Mirakhori** and **Sarfaraz K. Niazi**

Pharmaceuticals **2025**, *18*(1), 47; https://doi.org/10.3390/ph18010047 (https://doi.org/10.3390/ph18010047) - 3 Jan 2025

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Abstract Artificial Intelligence (AI) has the disruptive potential to transform patients' lives via innovations in pharmaceutical sciences, drug development, clinical trials, and manufacturing. However, it presents significant challenges, ethical concerns, and risks across sectors and societies. AI's rapid advancement has revealed regulatory gaps as **[...] Read more.**

(This article belongs to the Section **Medicinal Chemistry (/journal/pharmaceuticals/sections/pharm_medicinal_chemistry)**)

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Open Access Article 24 pages, 7156 KiB (/1424-8247/18/1/46/pdf?version=1736481528)

Nose-to-Brain Delivery of Chitosan-Grafted Leciplexes for Promoting the Bioavailability and Antidepressant Efficacy of Mirtazapine: In Vitro Assessment and Animal Studies (/1424-8247/18/1/46)

by **Amani M. El Sisi**, **Essam M. Eissa**, **Ahmed H. E. Hassan**, **Marina A. Bekhet**, **Fatma I. Abo El-Ela**, **Eun Joo Roh**, **Rasha M. Kharshoum** and **Adel A. Ali**

Pharmaceuticals **2025**, *18*(1), 46; https://doi.org/10.3390/ph18010046 (https://doi.org/10.3390/ph18010046) - 3 Jan 2025

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Abstr[illegible]ackground/Objectives: Mirtazapine (MRZ) is a psychotropic drug prescribed to manage serious sorts of depression. By virtue of its extensive initial-pass metabolic process with poor water

solubility, the ultimate bioavailability when taken orally is a mere 50%, necessitating repeated administration. The current inquiry **[...] Read more.**

(This article belongs to the Special Issue **Pharmaceutical Formulation Characterization Design (/journal/pharmaceuticals/special_issues/B57G93S4H6)**)

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Open Access Article 14 pages, 9728 KiB **(/1424-8247/18/1/45/pdf?version=1735882594)**

Exploring the Anti-Osteoporotic Effects of *n*-Hexane Fraction from *Cotoneaster wilsonii* Nakai: Activation of Runx2 and Osteoblast Differentiation In Vivo (/1424-8247/18/1/45)

by **Soyeon Hong**, **Hee Ju Lee**, **Da Seul Jung**, **Saruul Erdenebileg**, **Hoseong Hwang**, **Hak Cheol Kwon**, **Jaeyoung Kwon** and **Gyhye Yoo**

Pharmaceuticals **2025**, *18*(1), 45; **https://doi.org/10.3390/ph18010045 (https://doi.org/10.3390/ph18010045)** - 3 Jan 2025

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Abstract Background: Osteoporosis is characterized by the microstructural depletion of bone tissue and decreased bone density, leading to an increased risk of fractures. *Cotoneaster wilsonii* Nakai, an endemic species of the Korean Peninsula, grows wild in Ulleungdo. In this study, we aimed to investigate **[...] Read more.**

(This belongs to the Special Issue **The Role of Phytochemicals in Aging and Aging-Related Diseases (/journal/pharmaceuticals/special_issues/2BETMW4PXN)**)

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Open Access Article 15 pages, 4281 KiB (/1424-8247/18/1/44/pdf?version=1735874664)

Yeokwisan: Standardised Herbal Formula Enhancing Gastric Mucosal Protection Against Gastric Ulcers in Mice, a Preclinical Study (/1424-8247/18/1/44)

by **Yun Mi Lee**, **Kyuhyung Jo**, **So Yeon Kim**, **Chang-Seob Seo**, **Eunjung Son**, **Aejin Kim** and **Dong-Seon Kim**

Pharmaceuticals **2025**, *18*(1), 44; https://doi.org/10.3390/ph18010044 (https://doi.org/10.3390/ph18010044) - 2 Jan 2025
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Abstract Background: Yeokwisan (YWS) is a standardised herbal formula for relieving functional dyspepsia symptoms. **Methods**: We explored the therapeutic value of YWS and its potential effects on gastritis. Its inhibitory effect on gastric mucosal damage and anti-inflammatory activity in animal models of **[...] Read more.**

(This article belongs to the Section **Natural Products (/journal/pharmaceuticals/sections/natural_products)**)

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Open Access Article 23 pages, 9986 KiB (/1424-8247/18/1/43/pdf?version=1752457744)

Multi-Omics and Network-Based Drug Repurposing for Septic Cardiomyopathy (/1424-8247/18/1/43)

by **Pei-Pei Liu**, **Xin-Yue Yu**, **Qing-Qing Pan**, **Jia-Jun Ren**, **Yu-Xuan Han**, **Kai Zhang**, **Yan Wang**, **Yin Huang** and **Tao Ban**

Pharmaceuticals **2025**, *18*(1), 43; **https://doi.org/10.3390/ph18010043 (https://doi.org/10.3390/ph18010043)** - 2 Jan 2025

Cited by 3 (/1424-8247/18/1/43#metrics) | Viewed by 1376 | **Correction (/1424-8247/18/7/1040)**

Abstract Background/Objectives: Septic cardiomyopathy (SCM) is a severe cardiac complication of sepsis, characterized by cardiac dysfunction with limited effective treatments. This study aimed to identify repurposable drugs for SCM by integrated multi-omics and network analyses. Methods: We generated a mouse model of SCM induced **[...] Read more.**

(This article belongs to the Special Issue **Data-Driven Biomarker and Drug Discovery for Complex Disease (/journal/pharmaceuticals/special_issues/OR936LW4B1)**)

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Open Access Article 14 pages, 2690 KiB **(/1424-8247/18/1/42/pdf?version=1735737227)**

Potential Interaction of Pinocembrin with Drug Transporters and Hepatic Drug-Metabolizing Enzymes (/1424-8247/18/1/42)

by **Sirima Sangkapat**, **Rattiporn Boonnop**, **Jeerawat Pimta**, **Napason Chabang**, **Bodee Nutho**, **Promsuk Jutabha** and **Sunhapas Soodvilai**

Pharmaceuticals **2025**, *18*(1), 42; **https://doi.org/10.3390/ph18010042 (https://doi.org/10.3390/ph18010042)** - 1 Jan 2025

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Abstract Background/Objectives: Pinocembrin is a promising drug candidate for treating ischemic stroke. The interaction of pinocembrin with drug transporters and drug-metabolizing enzymes is not fully revealed. The present study aims to evaluate the interaction potential of pinocembrin with cytochrome P450 (CYP450: CYP2B6, CYP2C9, **[...] Read more.**

(This article belongs to the Section **Natural Products (/journal/pharmaceuticals/sections/natural_products)**)

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Open Access Review 27 pages, 837 KiB **(/1424-8247/18/1/41/pdf?version=1735720389)**

Sirtuins and Their Implications in the Physiopathology of Gestational Diabetes Mellitus (/1424-8247/18/1/41)

by **Katarzyna Zgutka**, **Marta Tkacz**, **Marta Grabowska**, **Wioletta Mikołajek-Bedner** and **Maciej Tarnowski**

Pharmaceuticals **2025**, *18*(1), 41; **https://doi.org/10.3390/ph18010041 (https://doi.org/10.3390/ph18010041)** - 1 Jan 2025

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Abstract Gestational diabetes mellitus (GDM) imposes serious short- and long-term health problems for the mother and her child. An effective therapeutic that can reduce the incidence of GDM and improve long-term outcomes is a major research priority and is very important for public health. **[...] Read more.**
(This article belongs to the Special Issue **Sirtuins as Novel Biological Targets for Pharmacological Intervention in Physiology and Pathology (/journal/pharmaceuticals/special_issues/I49MVP238R)**)

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Open Access Article 21 pages, 4624 KiB **(/1424-8247/18/1/40/pdf?version=1735716989)**

Astrocytic HIV-1 Nef Expression Decreases Glutamate Transporter Expression in the Nucleus Accumbens and Increases Cocaine-Seeking Behavior in Rats (/1424-8247/18/1/40)

by **Jessalyn Pla-Tenorio**, **Bethzaly Velazquez-Perez**, **Yainira Mendez-Borrero**, **Myrella L. Cruz**, **Marian T. Sepulveda-Orengo** and **Richard J. Noel, Jr.**
Pharmaceuticals **2025**, *18*(1), 40; **https://doi.org/10.3390/ph18010040 (https://doi.org/10.3390/ph18010040)** - 1 Jan 2025
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Abstract Background/Objectives: Cocaine use disorder is an intersecting issue in populations with HIV-1, further exacerbating the clinical course of the disease and contributing to neurotoxicity and neuroinflammation. Cocaine and HIV neurotoxins play roles in neuronal damage during neuroHIV progression by disrupting glutamate homeostasis in **[...] Read more.**
(This article belongs to the Special Issue **Advances in Neuropharmacology of Drug Abuse (/journal/pharmaceuticals/special_issues/AFRIK1565U)**)

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Open Access Article 20 pages, 1735 KiB (/1424-8247/18/1/39/pdf?version=1737715991)

Chemical Characterization and Differential Lipid-Modulating Effects of Selected Plant Extracts from Côa Valley (Portugal) in a Cell Model for Liver Steatosis (/1424-8247/18/1/39)

by **Ricardo Amorim**, **Mário Pedro Marques**, **Catarina Melim**, **Carla Varela**, **Vilma A. Sardão**, **José Teixeira**, **Maria Inês Dias**, **Lillian Barros**, **Paulo J. Oliveira** and **Célia Cabral**

Pharmaceuticals **2025**, *18*(1), 39; **https://doi.org/10.3390/ph18010039 (https://doi.org/10.3390/ph18010039)** - 1 Jan 2025

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Abstract Background/Objectives: Côa Valley, located in the northeast of Portugal, harbors more than 500 medicinal plant species. Among them, four species stand out due to their traditional uses: *Equisetum ramosissimum* Desf. (hemorrhages, urethritis, hepatitis), *Rumex scutatus* L. subsp. *induratus* (Boiss. and Reut.) Malag. (inflammation, **[...] Read more.**

(This article belongs to the Section **Natural Products (/journal/pharmaceuticals/sections/natural_products)**)

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Open Access Article 14 pages, 4986 KiB (/1424-8247/18/1/38/pdf?version=1735712322)

Therapeutic Potential of Combined 5% Lifitegrast and Tocopherol Eye Drops in Managing Inflammation and Oxidative Stress in Murine Dry Eye (/1424-8247/18/1/38)

by **Jayoung Moon**, **Enying Jiang**, **Jingting Liu**, **Hui Jin**, **Hee Su Yoon**, **Hoon-In Choi**, **Ji Suk Choi**, **Hong Qi**, **Hyeon-Jeong Yoon** and **Kyung Chul Yoon**

Pharmaceuticals **2025**, *18*(1), 38; **https://doi.org/10.3390/ph18010038 (https://doi.org/10.3390/ph18010038)** - 1 Jan 2025

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Abstract Background/Objectives: This study aimed to evaluate the therapeutic effects of combined 5% lifitegrast (LF) and tocopherol (TCP) eye drops in a murine experimental dry eye (EDE) model. **Methods:** Female C57BL/6 were divided into seven groups: untreated controls, EDE control, EDE + 0.05% **[...] Read more.**

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pharmacology))

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Open Access Article 10 pages, 505 KiB (/1424-8247/18/1/37/pdf?version=1735803790)

Microbial Pattern in Amniotic Fluid from Women with Premature Rupture of Membranes and Meconium-Stained Fluid (/1424-8247/18/1/37)

by **Fauna Herawati**, **Patricia Valery Rahaded**, **Ruddy Hartono** and **Rika Yulia**

Pharmaceuticals **2025**, *18*(1), 37; https://doi.org/10.3390/ph18010037 (https://doi.org/10.3390/ph18010037) - 31 Dec 2024

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Abstract Intra-amniotic infection (IAI), also known as chorioamnionitis, is a major cause of maternal and neonatal infection that occurs during pregnancy, labor and delivery, or in the postpartum period. Conditions such as meconium-stained amniotic fluid (MSAF) and premature rupture of membranes (PROMs) are recognized **[...] Read more.**

(This article belongs to the Special Issue **New Approaches to Fighting Infectious Diseases: Overcoming the Antimicrobial Resistance in Current Treatments (/journal/pharmaceuticals/special_issues/379PS2D43T)**)

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Open Access Review 23 pages, 1298 KiB (/1424-8247/18/1/36/pdf?version=1735639789)

GnRH Peptide Antagonist: Comparative Analysis of Chemistry and Formulation with Implications for Clinical Safety and Efficacy (/1424-8247/18/1/36)

by **Sh. Patel**, **Bhagawati Saxena**, **Priti Mehta** and **Sarfaraz K. Niazi**

Pharmaceuticals **2025**, *18*(1), 36; https://doi.org/10.3390/ph18010036 (https://doi.org/10.3390/

ph18010036) - 31 Dec 2024
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Abstract Overexpression of the gonadotropin-releasing hormone receptor (GnRH-R) plays a vital role in the advancement of reproductive malignancies such as ovarian, endometrial, and prostate cancer. Peptidomimetic GnRH antagonists are a substantial therapeutic development, providing fast and reversible suppression of gonadotropins by directly blocking GnRH-R. **[...] Read more.**
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Open Access Article 33 pages, 4427 KiB **(/1424-8247/18/1/35/pdf?version=1737533144)**

Therapeutic Efficacy of *Lavandula dentata*'s Oil and Ethanol Extract in Regulation of the Neuroinflammation, Histopathological Alterations, Oxidative Stress, and Restoring Balance Treg Cells Expressing FoxP3+ in a Rat Model of Epilepsy (/1424-8247/18/1/35)

by **Aziza Antar**, **Eman S. Abdel-Rehiem**, **Areej A. Al-Khalaf**, **Abdelaziz S. A. Abuelsaad**, **Mohamed Abdel-Gabbar**, **Gaber M. G. Shehab** and **Ayman M. Abdel-Aziz**
Pharmaceuticals **2025**, *18*(1), 35; **https://doi.org/10.3390/ph18010035 (https://doi.org/10.3390/ph18010035)** - 31 Dec 2024
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Abstract **Background/Objectives**: Despite the availability of antiepileptic drugs (AEDs) that can manage seizures, they often come with cognitive side effects. Furthermore, the role of oxidative stress and neuroinflammatory responses in epilepsy and the limitations of current AEDs necessitate exploring alternative therapeutic options. Medicinal **[...] Read more.**
(This article belongs to the Special Issue **Neuroprotective Potential of Natural Products: A Shield against Brain Decay (/journal/pharmaceuticals/special_issues/E9QKET8I7D)**)

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Exploring the Chemopreventive Potential of *Artemisia annua* Methanolic Extract in Colorectal Cancer Induced by Azoxymethane in Mice (/1424-8247/18/1/34)

by **Faris Alrumaihi**

Pharmaceuticals **2025**, *18*(1), 34; https://doi.org/10.3390/ph18010034 (https://doi.org/10.3390/ph18010034) - 31 Dec 2024

Cited by 2 (/1424-8247/18/1/34#metrics) | Viewed by 1613

Abstract Background/Objectives: Colorectal cancer (CRC) remains a major global health burden, necessitating innovative preventive approaches. *Artemisia annua* (*A. annua*), known for its extensive pharmacological properties, has shown potential in cancer therapy. This study investigates the chemopreventive efficacy of methanolic extract of *A.* **[...] Read more.**

(This article belongs to the Special Issue **Therapeutic Effects of Natural Products and Their Clinical Research (/journal/pharmaceuticals/special_issues/79QSWSOA83)**)

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Open Access Article 18 pages, 3508 KiB (/1424-8247/18/1/33/pdf?version=1735794474)

Synthesis and Characterization of PEGylated Liposomes and Nanostructured Lipid Carriers with

Entrapped Bioactive Triterpenoids: Comparative Fingerprints and Quantification by UHPLC-QTOF-ESI⁻-MS, ATR-FTIR Spectroscopy, and HPLC-DAD (/1424-8247/18/1/33)

by **Carmen Socaciu**, **Florinela Fetea** and **Mihai Adrian Socaciu**

Pharmaceuticals **2025**, *18*(1), 33; **https://doi.org/10.3390/ph18010033 (https://doi.org/10.3390/ph18010033)** - 31 Dec 2024

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Abstract Background/Objectives: Pentacyclic triterpenoids, as bioactive phytochemicals, have proven to exhibit significant bioactivity (antioxidant, anti-inflammatory, hypoglycemic, and anticancer) and low cytotoxicity. This study developed convenient methods for extracting and characterizing a birch bark extract enriched in pentacyclic triterpenoids (betulin, betulinic acid, and lupeol) **[...] Read more.**

(This article belongs to the Special Issue **Natural Products-Assisted Organic Synthesis in Medicinal Chemistry (/journal/pharmaceuticals/special_issues/7UWVVNIAPJ)**)

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Open Access Review 13 pages, 271 KiB **(/1424-8247/18/1/32/pdf?version=1735570353)**

Heart Failure in Elderly Patients: Medical Management, Therapies and Biomarkers (/1424-8247/18/1/32)

by **Pa Nadziakiewicz**, **Wioletta Szczurek-Wasilewicz** and **Bożena Szyguła-Jurkiewicz**

Pharmaceuticals **2025**, *18*(1), 32; **https://doi.org/10.3390/ph18010032 (https://doi.org/10.3390/**

ph18010032) - 30 Dec 2024
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Abstract Heart failure (HF) is a common condition and one of the main morbidity and mortality factors in elderly patients. The incidence of HF progressively increases with age, reaching >10% in those aged 70 years or over. In the elderly population, both the diagnosis **[...] Read more.**
(This article belongs to the Special Issue **Pharmacology of Heart Failure (/journal/pharmaceuticals/special_issues/302S5J1205)**)

Open Access Article 25 pages, 4169 KiB **(/1424-8247/18/1/31/pdf?version=1735726266)**

Fabrication and In Vivo Evaluation of In Situ pH-Sensitive Hydrogel of Sonidegib–Invasomes via Intratumoral Delivery for Basal Cell Skin Cancer Management (/1424-8247/18/1/31)

by **Maha M. Ghalwash**, **Amr Gamal Fouad**, **Nada H. Mohammed**, **Marwa M. Nagib**, **Sherif Faysal Abdelfattah Khalil**, **Amany Belal**, **Samar F. Miski**, **Nisreen Khalid Aref Albezrah**, **Amani Elsayed**, **Ahmed H. E. Hassan**, **Eun Joo Roh** and **Shaimaa El-Housiny**
Pharmaceuticals **2025**, *18*(1), 31; **https://doi.org/10.3390/ph18010031 (https://doi.org/10.3390/ph18010031)** - 30 Dec 2024
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Abstract Background/Objectives: Basal cell skin cancer (BCSC) develops when skin cells proliferate uncontrollably. Sonidegib (SDB) is a therapeutic option for the treatment of BCSC by inhibiting hedgehog signaling. The problems with SDB's low solubility, poor bioavailability, resistance, poor targeting, and first-pass action make it **[...] Read more.**
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Open Access Article 17 pages, 3929 KiB (/1424-8247/18/1/30/pdf?version=1735626079)

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Exploring Zinc C295 as a Dual HIV-1 Integrase Inhibitor: From Strand Transfer to 3′-Processing Suppression (/1424-8247/18/1/30)

by **Sharif Karim Sayyed**, **Marzuqa Quraishi**, **D. S. Prabakaran**, **Balaji Chandrasekaran**, **Thiyagarajan Ramesh**, **Satish Kumar Rajasekharan**, **Chaitany Jayprakash Raorane**, **Tareeka Sonawane** and **Vinothkannan Ravichandran**

Pharmaceuticals **2025**, *18*(1), 30; **https://doi.org/10.3390/ph18010030 (https://doi.org/10.3390/ph18010030)** - 29 Dec 2024

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Abstract Background: The global AIDS pandemic highlights the urgent need for novel antiretroviral therapies (ART). In our previous work, Zinc C295 was identified as a potent HIV-1 integrase strand transfer (ST) inhibitor. This study explores its potential to also inhibit 3′-processing (3′P), thereby **[...] Read more.**

(This article belongs to the Special Issue **In Silico and In Vitro Screening of Small Molecule Inhibitors (/journal/pharmaceuticals/special_issues/QEMSQ0F8AA)**)

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Open Access Article 16 pages, 5109 KiB (/1424-8247/18/1/29/pdf?version=1736334436)

***Zanthoxylum piperitum* Benn. Attenuates Monosodium Urate-Induced Gouty Arthritis: A Network Pharmacology Investigation of Its Anti-Inflammatory Mechanisms (/1424-8247/18/1/29)**

by **Sung Wook Kim**, **Soo Hyun Jeong**, **Jong Uk Kim**, **Mi Hye Kim**, **Wonwoong Lee**, **Cheol-Jung Lee**, **Tae Han Yook** and **Gabsik Yang**

Pharmaceuticals **2025**, *18*(1), 29; **https://doi.org/10.3390/ph18010029 (https://doi.org/10.3390/ph18010029)** - 29 Dec 2024

Cited by 1 (/1424-8247/18/1/29#metrics) | Viewed by 1398

Abstract Background: Monosodium urate crystal accumulation in the joints is the cause of gout, an

inflammatory arthritis that is initiated by elevated serum uric acid levels. It is the most prevalent form of inflammatory arthritis, affecting millions worldwide, and requires effective treatments. The necessity **[...] Read more.**

(This article belongs to the Special Issue **Network Pharmacology of Natural Products (/journal/pharmaceuticals/special_issues/2GAFOAG14B)**)

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48 pages, 6035 KiB **(/1424-8247/18/1/28/pdf?version=1735388847)**

Open Access Editor's Choice Review

Uncovering the Mechanism of Action of Antiprotozoal Agents: A Survey on Photoaffinity Labeling Strategy (/1424-8247/18/1/28)

by **Alessandro Giraudo**, **Cristiano Bolchi**, **Marco Pallavicini**, **Roberto Di Santo**, **Roberta Costi** and **Francesco Saccoliti**

Pharmaceuticals **2025**, *18*(1), 28; **https://doi.org/10.3390/ph18010028 (https://doi.org/10.3390/ph18010028)** - 28 Dec 2024

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Abstract *Plasmodium*, *Leishmania*, and *Trypanosoma* parasites are responsible for infectious diseases threatening millions of people worldwide. Despite more recent efforts devoted to the search for new antiprotozoal agents, efficacy, safety, and resistance issues still hinder the development of suited therapeutic options. The **[...] Read more.**

(This article belongs to the Special Issue **Recent Advancements in the Development of Antiprotozoal Agen urnal/pharmaceuticals/special_issues/7C9W2XIDFR)**)

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Open Access Article 15 pages, 2214 KiB (/1424-8247/18/1/27/pdf?version=1735383387)

Evaluation of the Antioxidant Properties and Biological Effects of a Novel Combined Barberry Root–Propolis Extract on HEK293T Cells (/1424-8247/18/1/27)

by **Dana Marcinčáková**, **Nikola Hudáková**, **Michal Miłek**, **Mária Kolesárová**, **Małgorzata Dżugan**, **Dasa Cizkova** and **Jaroslav Legáth**

Pharmaceuticals **2025**, *18*(1), 27; https://doi.org/10.3390/ph18010027 (https://doi.org/10.3390/ph18010027) - 28 Dec 2024

Cited by 2 (/1424-8247/18/1/27#metrics) | Viewed by 1212

Abstract **Background/Objectives:** The health benefits of honeybee products and herbs are well known, and their appropriate combination may enhance their biological efficacy. This study investigated the biological properties of a combined barberry root and propolis extract (PBE) in comparison to a propolis extract (PE), **[...] Read more.**

(This article belongs to the Special Issue **Pharmacological Properties and Therapeutic Potential of Honey Bee Products (/journal/pharmaceuticals/special_issues/87IO620GUU)**)

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Open Access Article 13 pages, 3057 KiB (/1424-8247/18/1/26/pdf?version=1735378388)

Comparison of ZnS(Ag) Scintillator and Proportional Counter Tube for Alpha Detection in Thin-Layer Chromatography (/1424-8247/18/1/26)

by **Mar[illegible]retze**, **Jan Wendrich**, **Holger Hartmann**, **Robert Freudenberg**, **Ralph A. Bundschuh**, **Jörg [illegible]rke** and **Enrico Michler**

Pharmaceuticals **2025**, *18*(1), 26; https://doi.org/10.3390/ph18010026 (https://doi.org/10.3390/

ph18010026) - 28 Dec 2024
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Abstract (1) **Background**: Targeted alpha therapy is an emerging field in nuclear medicine driven by two advantages: overcoming resistance in cancer-suffering patients to beta therapies and the practical application of lower activities of ^{212}Pb- and ^{225}Ac-labelled peptides to achieve the same **[...] Read more.**
(This article belongs to the Section **Radiopharmaceutical Sciences (/journal/pharmaceuticals/sections/radiopharmaceutical_sciences)**)

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Open Access Article 27 pages, 1069 KiB **(/1424-8247/18/1/25/pdf?version=1735377201)**

Anti-Inflammatory, Antithrombotic, and Antioxidant Properties of Amphiphilic Lipid Bioactives from Shrimp (/1424-8247/18/1/25)

by **Alexandros Tsoupras**, **Paschalis Cholidis**, **Dimitrios Kranas**, **Evangelia Aikaterini Galouni**, **Anna Ofrydopoulou**, **Pavlos Efthymiopoulos**, **Katie Shiels**, **Sushanta Kumar Saha**, **George Z. Kyzas** and **Chryssa Anastasiadou**
Pharmaceuticals **2025**, *18*(1), 25; **https://doi.org/10.3390/ph18010025 (https://doi.org/10.3390/ph18010025)** - 28 Dec 2024
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Abstract Background/Objectives: Marine organisms, including shrimps, have gained research interest due to containing an abundance of bioactive lipid molecules.This study evaluated the composition and the in vitro biological activities of amphiphilic bioactive compounds from four different wild shrimp species: *Litopenaeus vannamei*, *Penaeus kerathurus* **[...] Read more.**
(This belongs to the Section **Natural Products (/journal/pharmaceuticals/sections/natural_products)**)

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Open Access Article 24 pages, 5776 KiB (/1424-8247/18/1/24/pdf?version=1737533141)

Garcinia brasiliensis Leaves Extracts Inhibit the Development of Ascitic and Solid Ehrlich Tumors (/1424-8247/18/1/24)

by **Lucas Sylvestre Silva**, **Eduardo Cavallini**, **Rafael André da Silva**, **Monielle Sant'Ana**, **Ariane Harumi Yoshikawa**, **Thiago Salomão**, **Bianca Huang**, **Paula Craice**, **Luiz Philipe de Souza Ferreira**, **Heitor Pedro Della Matta**, **Cristiane Damas Gil**, **Maria de Lourdes Gomes Pereira** and **Ana Paula Girol**

Pharmaceuticals **2025**, *18*(1), 24; https://doi.org/10.3390/ph18010024 (https://doi.org/10.3390/ph18010024) - 28 Dec 2024
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Abstract **Background:** *Garcinia brasiliensis* is traditionally known for its medicinal properties. Objectives: Here, we investigated the effects of crude extract (CE) and ethyl acetate fraction (EAF) obtained from *G. brasiliensis* leaves on the ascitic (EA) and solid (ES) forms of Ehrlich tumors. **Methods [...] Read more.**
(This article belongs to the Special Issue **Bioactive Compounds Derived from Plants and Their Medicinal Potential (/journal/pharmaceuticals/special_issues/65WHQ1BRU9)**)

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Open Access Article 13 pages, 2072 KiB (/1424-8247/18/1/23/pdf?version=1735295501)

Evaluation of Prediction Models for the Capping and Breaking Force of Tablets Using Machine Learning Tools in Wet Granulation Commercial-Scale Pharmaceutical Manufacturing (/1424-8247/18/1/23)

by **Sun Ho Kim**, **Su Hyeon Han**, **Dong-Wan Seo** and **Myung Joo Kang**

Pharmaceuticals **2025**, *18*(1), 23; **https://doi.org/10.3390/ph18010023 (https://doi.org/10.3390/ph18010023)** - 27 Dec 2024

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Abstract Background/Objectives: This study aimed to establish a predictive model for critical quality attributes (CQAs) related to tablet integrity, including tablet breaking force (TBF), friability, and capping occurrence, using machine learning-based models and nondestructive experimental data. **Methods**: The machine learning-based models were **[...] Read more.**

(This article belongs to the Special Issue **The 20th Anniversary of *Pharmaceuticals*—How Artificial Intelligence Is Reshaping Pharmaceuticals Technology (/journal/pharmaceuticals/special_issues/BJ8P51W7HR)**)

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Open Access Brief Report 9 pages, 336 KiB (/1424-8247/18/1/22/pdf?version=1735295628)

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Impact in Clinical Practice of the European Medicines Agency Health Alert About the Restriction of the Use of JAK Inhibitors (/1424-8247/18/1/22)

by **Elisabet Castañeda-Estévez**, **Cristina Vergara-Dangond**, **Martina Steiner**, **Maria Beatriz Paredes-Romero**, **Ana Esteban-Vázquez**, **Tatiana Cobo-Ibañez**, **Laura Trives-Folguera**, **Maria Liz Romero-Bogado**, **Isabel De La Cámara-Fernández**, **Patricia Richi-Alberti**, **Ana Acosta-Alfaro**, **Iría De la Osa-Subtil** and **Santiago Muñoz-Fernández**

Pharmaceuticals **2025**, *18*(1), 22; https://doi.org/10.3390/ph18010022 (https://doi.org/10.3390/ph18010022) - 27 Dec 2024

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Abstract **Background/Objectives:** Janus kinase inhibitors (JAKi) have revolutionized the treatment of various inflammatory and immune disorders. Concerns about the potential increased risk of major adverse cardiovascular events (MACEs) associated with JAKi use led to a European Medicines Agency (EMA) health alert recommending restricting the **[...] Read more.**

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Open Access Article 14 pages, 1529 KiB (/1424-8247/18/1/21/pdf?version=1735289398)

Repurposing the Antidiabetic Drugs Glyburide, Gliquidone, and Glipizide in Combination with Benznidazole for *Trypanosoma cruzi* Infection (/1424-8247/18/1/21)

by **Citlali Vázquez**, **Rusely Encalada**, **Isabel Jiménez-Galicia**, **Rogelio Gómez-Escobedo**, **Gildardo Rivera**, **Benjamín Nogueda-Torres** and **Emma Saavedra**

Pharmaceuticals **2025**, *18*(1), 21; https://doi.org/10.3390/ph18010021 (https://doi.org/10.3390/ph18010021) - 27 Dec 2024

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Abstract Infection with the protozoan parasite *Trypanosoma cruzi* causes human Chagas disease. Benznidazole (BNZ) and nifurtimox are the current drugs for the treatment; however, they induce severe adverse side effects in patients; therefore, there is a need to improve the treatment effectiveness and efficiency **[...] Read more.**

(This belongs to the Special Issue **Drug Discovery and Development for Parasitic Diseases (/journal/pharmaceuticals/special_issues/G5MR8636DL)**)

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Open Access Article 14 pages, 7061 KiB (/1424-8247/18/1/20/pdf?version=1735290778)

Aspergillus oryzae Fermented *Plumula Nelumbinis* Against Atopic Dermatitis Through AKT/mTOR and Jun Pathways (/1424-8247/18/1/20)

by **Fengfeng Chen**, **Jing Liu**, **Xinwei Yu**, **Honglei Jia**, **Cheng Yang** and **Bingtian Zhao**

Pharmaceuticals **2025**, *18*(1), 20; https://doi.org/10.3390/ph18010020 (https://doi.org/10.3390/ph18010020) - 27 Dec 2024

Abstract Background/Objectives: Atopic dermatitis (AD) is a chronic inflammatory skin disorder that has attracted global attention, and alkaloids from *Plumula Nelumbinis* have been shown to have anti-inflammatory activity. Fermentation has been used for the structural modification of natural compounds to improve bioavailability and activity, **[...] Read more.**

(This article belongs to the Section **Pharmacology (/journal/pharmaceuticals/sections/pharm-pharmacology)**)

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Open Access Article 24 pages, 3209 KiB (/1424-8247/18/1/19/pdf?version=1735285360)

Multi-Omics Analysis in Mouse Primary Cortical Neurons Reveals Complex Positive and Negative Biological Interactions Between Constituent Compounds of *Centella asiatica* (/1424-8247/18/1/19)

by **Steven R. Chamberlin**, **Jonathan A. Zweig**, **Cody J. Neff**, **Luke Marney**, **Jaewoo Choi**, **Liping Yang**, **Claudia S. Maier**, **Amala Soumyanath**, **Shannon McWeeney** and **Nora E. Gray**

Pharmaceuticals **2025**, *18*(1), 19; **https://doi.org/10.3390/ph18010019 (https://doi.org/10.3390/ph18010019)** - 27 Dec 2024
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Abstract Background: A water extract of the Ayurvedic plant *Centella asiatica* (L.) Urban, family Apiaceae (CAW), improves cognitive function in mouse models of aging and Alzheimer's disease and affects dendritic arborization, mitochondrial activity, and oxidative stress in mouse primary neurons. Triterpenes (TT) and caffeoylquinic **[...] Read more.**

(This article belongs to the Special Issue **Network Pharmacology of Natural Products (/journal/pharmaceuticals/special_issues/2GAFOAG14B)**)

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Open Access Article 22 pages, 7714 KiB (/1424-8247/18/1/18/pdf?version=1735223492)

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(-)-Fenchone Ameliorates TNBS-Induced Colitis in Rats via Antioxidant, Immunomodulatory, and Cytoprotective Mechanisms (/1424-8247/18/1/18)

by **Maria Elaine Cristina Araruna**, **Edvaldo Balbino Alves Júnior**, **Catarina Alves de Lima Serafim**, **Matheus Marley Bezerra Pessoa**, **Michelle Liz de Souza Pessôa**, **Vitória Pereira Alves**, **Marianna Vieira Sobral**, **Marcelo Sobral da Silva**, **Adriano Francisco Alves**, **Maria Carolina de Paiva Sousa**, **Aurigena Antunes Araújo** and **Leônia Maria Batista**

Pharmaceuticals **2025**, *18*(1), 18; https://doi.org/10.3390/ph18010018 (https://doi.org/10.3390/ph18010018) - 26 Dec 2024

Abstract Background: (-)-Fenchone is a bicyclic monoterpene present in the plant species *Foeniculum vulgare* Mill, *Thuja occidentalis* L. (tuja), and *Lavandula stoechas* (lavender). These plants have therapeutic value in the treatment of intestinal disorders. Aim: To evaluate intestinal anti-inflammatory activity in an acute and **[...] Read more.**

(This article belongs to the Special Issue **The 20th Anniversary of *Pharmaceuticals*—Ethnopharmacology in Latin America** (/journal/pharmaceuticals/special_issues/R113ZWSJZJ))

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Open Access Article 17 pages, 4661 KiB (/1424-8247/18/1/17/pdf?version=1735288903)

Beeswax Alcohol (BWA, Raydel®) Improved Blood Oxidative Variables and Ameliorated Severe Damage of Zebrafish Kidneys, Testes, and Ovaries Impaired by 24-Week Consumption of a High-Cholesterol and High-Galactose Diet: A Comparative Analysis with Coenzyme Q_{10} (/1424-8247/18/1/17)

by **Kyung-Hyun Cho**, **Ashutosh Bahuguna**, **Ji-Eun Kim**, **Yunki Lee**, **Sang Hyuk Lee**, **Cheolmin Jeon** and **Cheol-Hee Kim**

Pharmaceuticals **2025**, *18*(1), 17; https://doi.org/10.3390/ph18010017 (https://doi.org/10.3390/ph18010017) - 26 Dec 2024

Abstract Objectives: The present study describes the comparative effect of 24-week supplementation of beeswax alcohol (BWA, Raydel®, 0.5% and 1.0%, wt/wt) and coenzyme Q_{10} (CoQ_{10}, 0.5% and 1.0%, wt/wt) on plasma oxidative variables and the prevention of organ injury **[...] Read more.**

(This article belongs to the Special Issue **Pharmacological Properties and Therapeutic Potential of Honey Bee Products (/journal/pharmaceuticals/special_issues/87IO620GUU)**)

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Open Access Article 27 pages, 3463 KiB (/1424-8247/18/1/16/pdf?version=1735220849)

Hybrid Carbohydrate–Lipid Nanocarriers: In Vitro Efficacy Gene-Rated by Association of UV-Absorbers and Raspberry Polyphenols Rich-Fraction (/1424-8247/18/1/16)

by **Nicoleta Badea**, **Diego Samayoa**, **Alina Moroşan**, **Cristina Ott** and **Ioana Lacatusu**

Pharmaceuticals **2025**, *18*(1), 16; https://doi.org/10.3390/ph18010016 (https://doi.org/10.3390/ph18010016) - 26 Dec 2024

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Abstract **Background/Objectives:** The study aims to investigate an improved version of lipid nanocarriers (NLCs) (formulated with functional coconut butter and marula oil) by designing hyaluronic acid (HA) decorated NLC co-loaded with dual UVA (butyl methoxy dibenzoyl methane, BMDBM), UVB absorbers (ethyl-hexyl-salicylate, EHS) and a **[...] Read more.**

(This article belongs to the Special Issue **Recent Advances in Natural Product Based Nanostructured Systems (/journal/pharmaceuticals/special_issues/05448XAY9R)**)

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Open Access Article 20 pages, 1423 KiB (/1424-8247/18/1/15/pdf?version=1735211071)

Improved Antibacterial Properties of Fermented and Enzymatically Hydrolyzed Bee Pollen and Its Combined Effect with Antibiotics (/1424-8247/18/1/15)

by **Vaida Damulienė**, **Vilma Kaškonienė**, **Paulius Kaškonas**, **Rūta Mickienė** and **Audrius Maruška**

Pharmaceuticals **2025**, *18*(1), 15; **https://doi.org/10.3390/ph18010015 (https://doi.org/10.3390/ph18010015)** - 26 Dec 2024

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Abstract Background/Objectives: A variety of phytochemicals from different plants are collected by bees into bee pollen granules. This research focused on evaluating the effects of lactic acid fermentation and enzymatic hydrolysis on the antibacterial activity of bee pollen and its interaction with antibiotics. There **[...] Read more.**

(This article belongs to the Special Issue **Pharmacological Properties and Therapeutic Potential of Honey Bee Products (/journal/pharmaceuticals/special_issues/87IO620GUU)**)

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Silver N-Heterocyclic Carbene (NHC) Complexes as Antimicrobial and/or Anticancer Agents (/1424-8247/18/1/9)

by **Jessica Ceramella**, **Alessia Catalano**, **Annaluisa Mariconda**, **Assunta D'Amato**, **Saveria Aquila**, **Carmela Saturnino**, **Camillo Rosano**, **Maria Stefania Sinicropi** and **Pasquale Longo**

Pharmaceuticals **2025**, *18*(1), 9; **https://doi.org/10.3390/ph18010009 (https://doi.org/10.3390/ph18010009)** - 25 Dec 2024

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Abstract The strict connections/interactions between microbial infections and cancer are nowadays widely accepted. Hence, the dual (or multiple) targeting of microbial infections and cancer is an essential issue to be addressed. In this context, metal complexes have gained considerable importance and effectiveness in medicinal **[...] Read more.**

(This article belongs to the Special Issue **Current Advances, Applications and Future Development of Transition Metal Complexes (/journal/pharmaceuticals/special_issues/S4S2JQZ7FG)**)

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Open Access Article 17 pages, 5171 KiB **(/1424-8247/18/1/14/pdf?version=1735128885)**

Ivermectin Strengthens Paclitaxel Effectiveness in High-Grade Serous Carcinoma in 3D Cell Cultures (/1424-8247/18/1/14)

by **Mariana Nunes** and **Sara Ricardo**

Pharmaceuticals **2025**, *18*(1), 14; **https://doi.org/10.3390/ph18010014 (https://doi.org/10.3390/ph18010014)** - 25 Dec 2024

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Abstract Background: Chemoresistance is a major obstacle in high-grade serous carcinoma (HGSC) treatment. Although many patients initially respond to chemotherapy, the majority of them relapse due to Carboplatin and Paclitaxel resistance. Drug repurposing has surfaced as a potentially effective strategy that works synergically with **[...] Read more.**

(This article belongs to the Special Issue **Small Molecules in Targeted Cancer Therapy and Diagnosis (/journal/pharmaceuticals/special_issues/J62T154G5Q)**)

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Machine Learning-Assisted Drug Repurposing Framework for Discovery of Aurora Kinase B Inhibitors (/1424-8247/18/1/13)

by **George Nicolae Daniel Ion**, **George Mihai Nitulescu** and **Dragos Paul Mihai**

Pharmaceuticals **2025**, *18*(1), 13; https://doi.org/10.3390/ph18010013 (https://doi.org/10.3390/ph18010013) - 25 Dec 2024

Abstract Background: Aurora kinase B (AurB) is a pivotal regulator of mitosis, making it a compelling target for cancer therapy. Despite significant advances in protein kinase inhibitor development, there are currently no AurB inhibitors readily available for therapeutic use. **Methods:** This study introduces a **[...]** Read more.

(This article belongs to the Special Issue Computer-Aided Drug Design and Drug Discovery (/journal/pharmaceuticals/special_issues/CDY0D8W0CQ))

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Gegen Qinlian Decoction Attenuates Colitis-Associated Colorectal Cancer via Suppressing TLR4 Signaling Pathway Based on Network Pharmacology and In Vivo/In Vitro Experimental Validation (/1424-8247/18/1/12)

by **Yaoyao Xu**, **Qiaoyan Cai**, **Chunyu Zhao**, **Weixiang Zhang**, **Xinting Xu**, **Haowei Lin**, **Yuxing Lin**, **Daxin Chen**, **Shan Lin**, **Peizhi Jia**, **Meiling Wang**, **Ling Zhang** and **Wei Lin**

Pharmaceuticals **2025**, *18*(1), 12; https://doi.org/10.3390/ph18010012 (https://doi.org/10.3390/ph18010012) - 25 Dec 2024

Abstract **Background**: Gegen Qinlian Decoction (GQD), is used for intestinal disorders like ulcerative colitis, irritable bowel syndrome, and colorectal cancer. But the precise mechanisms underlying its anti-inflammatory and anti-tumor effects are not fully elucidated. **Methods**: Use network pharmacology to identify targets and **[...] Read more.**

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Kojic Acid Derivative as an Antimitotic Agent That Selectively Kills Tumour Cells (/1424-8247/18/1/11)

by **Giuseppina Pichiri**, **Marco Piludu**, **Terenzio Congiu**, **Nicole Grandi**, **Pierpaolo Coni**, **Monica Piras**, **Mariusz Jaremko** and **Joanna Izabela Lachowicz**

Pharmaceuticals **2025**, *18*(1), 11; https://doi.org/10.3390/ph18010011 (https://doi.org/10.3390/ph18010011) - 25 Dec 2024

Abstract Background/Objectives: The primary method used to pharmacologically arrest cancer development and its metastasis is to disrupt the cell division process. There are a few approaches that may be used to meet this objective, mainly through inhibiting DNA replication or mitosis. Despite intensive studies **[...] Read more.**

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Open Access Article 28 pages, 6325 KiB (/1424-8247/18/1/10/pdf?version=1735117191)

Phytochemical and Biological Investigations of Crude Extracts of *Astragalus pisidicus* (/1424-8247/18/1/10)

by **Esra Aydemir**, **Elif Odabaş Köse**, **Serap Özkaya Gül**, **Alaaddin Korkut**, **A. Cansu Kilit**, **Mehmet Engin Celep**, **Mustafa Yavuz**, **R. Süleyman Göktürk** and **Cengiz Sarikurkcu**

Pharmaceuticals **2025**, *18*(1), 10; https://doi.org/10.3390/ph18010010 (https://doi.org/10.3390/ph18010010) - 25 Dec 2024

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Abstract **Background/Objectives**: *Astragalus* L. is a genus of the Fabaceae family, encompassing over 3000 species globally, with 380 species found in Turkey. This is the inaugural examination of the phytochemical, antioxidant, antibacterial, and cytotoxic properties of *Astragalus pisidicus*. **Methods**: The water **[...] Read more.**

(This article belongs to the Section **Natural Products (/journal/pharmaceuticals/sections/natural_products)**)

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Open Access Article 13 pages, 15499 KiB (/1424-8247/18/1/8/pdf?version=1735110764)

Musa paradisiaca L. Inflorescence Abrogates Neutrophil Activation by Downregulating TLR4/NF-KB Signaling Pathway in LPS-Induced Acute Lung Injury Model (/1424-8247/18/1/8)

by **Francisco Allysson Assis Ferreira Gadelha**, **Raquel Fragoso Pereira Cavalcanti**, **Cosmo Isaias Duvirgens Vieira**, **Joao Batista De Oliveira**, **Louíse Mangueira De Lima**, **Adriano Francisco Alves**, **Matheus Marley Bezerra Pessoa**, **Leônia Maria Batista**, **Naiara Naiana Dejani** and **Marcia Regina Piuvezam**

Pharmaceuticals **2025**, *18*(1), 8; **https://doi.org/10.3390/ph18010008 (https://doi.org/10.3390/ph18010008)** - 24 Dec 2024

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Abstract Background/Objectives: Acute lung injury (ALI) is an inflammatory disorder affecting patients in intensive care with high mortality. No specific pharmacological treatment is available. *Musa paradisiaca* L. (banana) is a cosmopolitan plant, and homemade syrup from its inflorescence is used in many countries **[...] Read more.**

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Indomethacin-Induced Gastric Ulcer in Rats: Gastroprotectivity of *Muscari neglectum* in Water (/1424-8247/18/1/7)

by **Menekse Soydan**, **Gulnur Arabaci**, **Necati Utlu**, **Mesut Bünyami Halici**, **Esra Aktas Senocak** and **Metin Kiliçlioglu**

Pharmaceuticals **2025**, *18*(1), 7; **https://doi.org/10.3390/ph18010007 (https://doi.org/10.3390/ph18010007)** - 24 Dec 2024

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Abstract Background and Objectives: The plant *Muscari Mill*. is employed in both raw and cooked forms for the ment of gastric diseases, as an expectorant, and for the treatment of warts and the enhancement of urine. A review of the scientific literature revealed **[...] Read more.**

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Natural Product Identification and Molecular Docking Studies of Leishmania Major Pteridine Reductase Inhibitors (/1424-8247/18/1/6)

by **Moses N. Arthur**, **George Hanson**, **Emmanuel Broni**, **Patrick O. Sakyi**, **Henrietta Mensah-Brown**, **Whelton A. Miller III** and **Samuel K. Kwofie**

Pharmaceuticals **2025**, *18*(1), 6; **https://doi.org/10.3390/ph18010006 (https://doi.org/10.3390/ph18010006)** - 24 Dec 2024

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Abstract Background/Objectives: Pteridine reductase 1 (PTR1) has been one of the prime targets for discovering novel antileishmanial therapeutics in the fight against Leishmaniasis. This enzyme catalyzes the NADPH-dependent reduction of pterins to their tetrahydro forms. While chemotherapy remains the primary treatment, its effectiveness **[...] Read more.**

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Understanding the Molecular Mechanisms of Incomptine A in Treating Non-Hodgkin Lymphoma Associated with U-937 Cells: Bioinformatics Approaches, Part I (/1424-8247/18/1/5)

by **Fernando Calzada**, **Normand García-Hernández**, **Elihú Bautista**, **José Manuel Sánchez-López**, **Miguel Valdes**, **Claudia Velázquez** and **Elizabeth Barbosa**

Pharmaceuticals **2025**, *18*(1), 5; https://doi.org/10.3390/ph18010005 (https://doi.org/10.3390/ph18010005) - 24 Dec 2024
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Abstract **Background**: Incomptine A (**IA**) has been reported to have cytotoxic activity in non-Hodgkin lymphoma cancer cell lines and have effects on U-937 cells, including the induction of apoptosis, the production of reactive oxygen species, and the inhibition of glycolytic enzymes. **[...] Read more.**
(This article belongs to the Special Issue **Natural Products for Therapeutic Potential (/journal/pharmaceuticals/special_issues/H12D3BPIH2)**)

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Glucose-Lowering Agents Developed in the Last Two Decades and Their Perioperative Implications (/1424-8247/18/1/4)

by **Basavana Goudra**, **Geno J. Merli** and **Michael Green**

Pharmaceuticals **2025**, *18*(1), 4; https://doi.org/10.3390/ph18010004 (https://doi.org/10.3390/ph18010004) - 24 Dec 2024

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Abstract The last two decades have provided far more options f both patients and their physicians in the treatment of diabetes mellitus. While dipeptidyl peptidase-4 inhibitors (DPP-4is) and glucagon-like peptide 1 receptor agonists (GLP-1RAs) have been approved for nearly two decades, sodium–glucose cotransporter 2 **[...] Read more.**

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Downregulation of Ezrin Suppresses Migration Potential in Cervical Cancer Cells (/1424-8247/18/1/3)

by **Marta Hałas-Wiśniewska**, **Wioletta Arendt**, **Alina Grzanka** and **Magdalena Izdebska**

Pharmaceuticals **2025**, *18*(1), 3; https://doi.org/10.3390/ph18010003 (https://doi.org/10.3390/ph18010003) - 24 Dec 2024

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Abstract Background: The literature reports that ezrin (EZR) is important as a linker between microfilaments and cellular environments. Moreover, it affects cancer cell migration, but the exact mechanism is not fully understood. In this study, we aimed to investigate the role of EZR in **[...] Read more.**

(This article belongs to the Special Issue **Inhibition and Treatment in Adhesion, Migration, Invasion, and Metastasis of Cancer Cells (/journal/pharmaceuticals/special_issues/2CERZH3XEF)**)

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Open Access Article 21 pages, 2955 KiB (/1424-8247/18/1/2/pdf?version=1735033396)

Multivalent Neuroprotective Activity of *Elettaria cardamomum* (Cardamom) and *Foeniculum vulgare* (Fennel) in H_2O_2-Induced Oxidative Stress in SH-SY5Y Cells and Acellular Assays (/1424-8247/18/1/2)

by **Himadri Sharma**, **Hyewon Yang**, **Niti Sharma** and **Seong Soo A. An**

Pharmaceuticals **2025**, *18*(1), 2; https://doi.org/10.3390/ph18010002 (https://doi.org/10.3390/ph18010002) - 24 Dec 2024

Abstract Background: *Elettaria cardamomum* (Cardamom) and *Foeniculum vulgare* (Fennel) are well-known spices and are also used as natural mouth fresheners. This study was performed to evaluate their neuroprotective ability based on certain acellular and cellular assays. Methods: Hexane and ethyl acetate extracts were prepared **[...] Read more.**

(This article belongs to the Special Issue **Neuropharmacology of Plant Extracts and Their Active Compounds (/journal/pharmaceuticals/special_issues/U6W377Y3N0)**)

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Correction: AlRasheed et al. Aspartames Alter Pharmacokinetics Parameters of Erlotinib and Gefitinib and Elevate Liver Enzymes in Wistar Rats. *Pharmaceuticals* 2022, *15*, 1400 (/1424-8247/18/1/1)

by **Hajer AlRasheed**, **Aliyah Almomen**, **Haya I. Aljohar**, **Maria Arafah**, **Rana Y. Almotawa**, **Manal A. Alossaimi** and **Nourah Z. Alzoman**

Pharmaceuticals **2025**, *18*(1), 1; https://doi.org/10.3390/ph18010001 (https://doi.org/10.3390/ph18010001) - 24 Dec 2024

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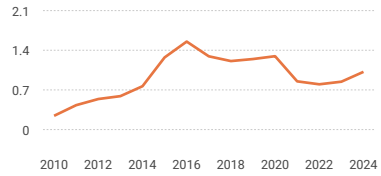

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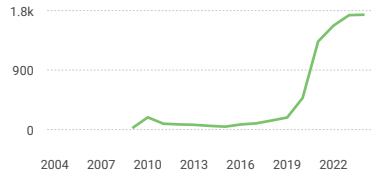

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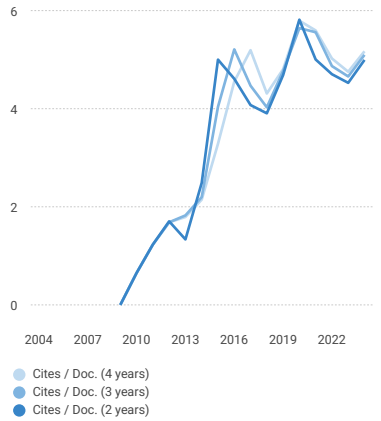

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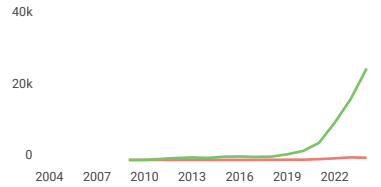

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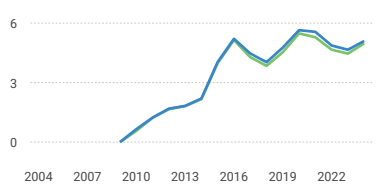

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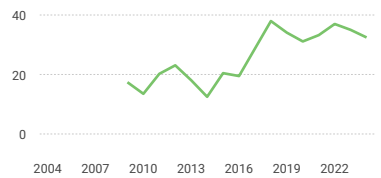

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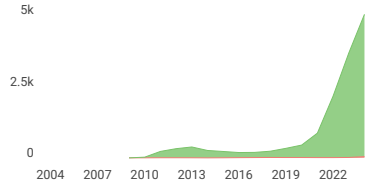

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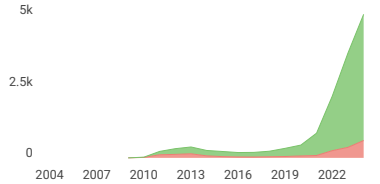

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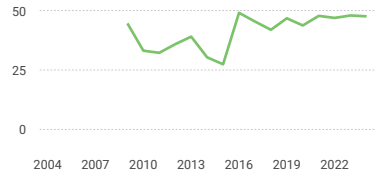

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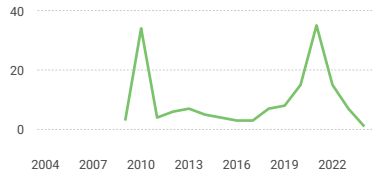

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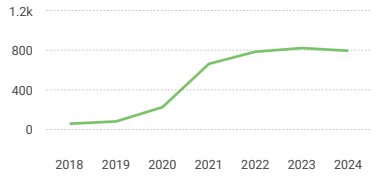

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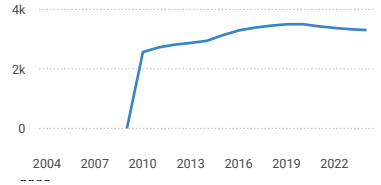

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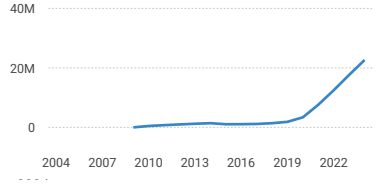

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