

## THE IMPORTANCE OF FERMENTED PLANT EXTRACT FOR ANTI AGING INCOSMETICS PRODUCT

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Skin aging is a complex biological process that is influenced by a combination of endogenous or intrinsic factors (genetics, cellular metabolism, hormones, and metabolic processes) and exogenous or extrinsic (chronic light exposure, pollution, ionizing radiation, chemicals, and poisons).<sup>[1-2]</sup>

Intrinsic skin aging is a process of chronological physiological changes. For intrinsically old skin, the most remarkable histological changes occur in the basal cell layer. The study found that as a person ages, there is a reduction in cell proliferation in the basal layer.<sup>[3]</sup> In addition, evidence supports that intrinsically aged skin, not

only fibrousextracellular matrix components including elastin, fibrillin and collagen, but also oligosaccharides regress, which in turn affects the skin's ability to bind water to the skin'slayer.<sup>[3,4]</sup>

Exposure to UV radiation rays is a major factor in extrinsic skin aging and provides about 80% of facial aging.<sup>[4]</sup> It is known that ROS is an oxidant and through the oxidation process will decrease the enzyme protein-tyrosine phosphatase. The decrease in this enzyme will cause up-regulation of growth factor receptors and will ultimately activate AP-1 which is a nuclear transcription factor, through activation of the c-Jun and c-Fos transcription factors producing AP-1, and reduce the inhibition of RA receptors in AP -1. Further effects of UV include direct mutagenesis in DNA, regulation of kB-factor (NF-kB), and regulation of Transformig Growth Factor-beta (TGF- $\beta$ ). This effect results in a decrease in collagen production, and an increase in the production of inflammatory cytokines.<sup>[5]</sup> In humans within a few hours of exposure to UV rays will form MMPs, especially gelatinase and collagenase which causes a decrease in the amount of collagen in the dermis layer.<sup>[6,7]</sup>

To reduce skin wrinkles, topical treatment commonly used are retinoid acid (RA).<sup>[8]</sup> Retinoid acid mechanism of action against aging is by increase type I, II, and VII collagens,<sup>[9]</sup> Reorganizes elastic fiber,<sup>[10]</sup> decreases MMPs,<sup>[11,12]</sup> and normalizes GAG deposition,<sup>[13]</sup> but these ingredients have many drawbacks, which are expensive and unstable, thereby reducing its practicality. Therefore, safer and more effective treatment methods are developed to reduce skin wrinkles in the cosmetics industry. The use of herbal ingredients derived from plants is a productive basis for finding these bioactive compounds. In addition, the fermentation process has been shown to increase the therapeutic effect of some herbal medicines.<sup>[14]</sup>

Fermentation can increase the physiological and biochemical activity of the substrate by facilitating molecules, so that fermented products may be more compatible with unfermented products.<sup>[15]</sup> Successful fermentation often depends on strain selection. Selection of the right microorganisms for the fermentation process can not only metabolize herbs or herbal extracts but can also increase their physiological activity and decrease their cytotoxicity.<sup>[16]</sup>

Extraction and Fermentation Process of fermented plant is plant powder selected as an ingredient for fermentation is extracted using a solvent (such as aqueous solution or ethanol) and within a predetermined time, the extract is then filtered and concentrated using a rotary vacuum evaporator at a predetermined temperature. The bacteria to be used are cultured first in the appropriate culture media, then the extract of the plant is inoculated in a bacterial suspension, the mixture is then incubated under the appropriate conditions (time, temperature, aerobic / anaerobic). Then the fermentation solution is centrifuged, the supernatant is collected and filtered and concentrated using a vacuum evaporator and was freeze-dried and stored at 20°C.

Therefore we have searched for products on the market that use fermented active in skin care products for aging treatment, and searched the literature on Scopus, PubMed, Google Scholar using the keywords "Fermented Plants", "Aging" and the name of the fermented plant in accordance with the ingredients contained in product. There is no restrictions based on the year in choosing the publication. Literature relating to the use of fermented plant extracts for cosmetic purposes chosen for preparation current script. This research provides an overview report the cosmeceutical importance of FPE briefly.

Table 1: Example of Fermented Plant for Aging Treatment Product.

Material	Microbes Involved	Fermented Active	Study Type	Result	Product in Market	Ref.
<i>Panax ginseng</i>	<i>Saccharomyces cerevisiae</i>	Fermented Black Gingseng (FBG)	In vitro (Human dermal fibroblast HS68)	FBG extracts significantly increased the expression of type I procollagen in human fibroblasts.		(21)
			Clinical Study(23 subjects)	FBG cream significantly reduced the appearance of eye wrinkle compared to control and other cream	Sooryehan- Hyobidam fermentation skincare set (Toner, Emulsion, Essence, Cream, Eye cream)	(22)
			In vitro (Human Fibroblast CCD-986) and (mouse melaboma B16F1 cells)	FBG significantly improved Collagen synthesis in CCD-986sk, inhibited (73%) collagenase, and matrix metalloproteinase-1 (MMP-1) compared to control.		(22)
Green Honeybush ( <i>Cyclopia intermedia</i> )	<i>Streptococcus thermophilus</i>	Fermented Honeybush (FH)	In vitro (HaCaT cells)	FH exhibit anti-oxidative and inflammatory effects that are mediated by lowering ROS production, suppressing p38, ERK, MEK and JNK activation, and down-regulating expression of MMPs. These findings suggest that FH can be used as a skin anti-photoaging agent.	Elravie-Ferment Honeybush Inner set Ampoule	(23)
<i>Asparagus cochinchinensis</i>	<i>Weissella cibaria</i>	Fermented <i>A. cochinchinensis</i> products of <i>W. cibaria</i> (FPW)/BAW	In vitro (RAW264.7 cell)	BAW is a high anti-oxidative agent, and BAW pretreatment indicate that suppresses the enhancement of pro-inflammatory cytokine expressions that were induced by LPS treatment in RAW264.7 cells.	SWANICOCO-Fermentation Peptide Eye Care Cream GUBONCHO-Recovery Night Cream Anti Aging Moisturizer skin recovery cream	(24)
<i>Triticum aestivum</i>	<i>Lactobacillus buchneri</i>	Extract of <i>Triticum aestivum</i> Leaf fermented with <i>Lactobacillus buchneri</i> (TAB)	In vitro (CCD-986sk fibroblasts) and In vitro (HaCaT Keratinocytes)	TAB and GMB have a potential role as anti-wrinkle in cosmetics agent, from the enhancement of type I procollagen synthesis and the inhibition of elastase activity and the expression of UVB-induced MMPs by alleviating the effect of ROS in a UVB-induced photoaging in vitro model.		(25)
<i>Glycine max</i> Merr. with inner color- greenish	<i>Lactobacillus buchneri</i>	<i>Glycine max</i> Merr. with inner color- greenish fermented with <i>Lactobacillus buchneri</i> (GMB)			A'PIEU-Lactobacillus Moisturizing Ampoule Zymogen- Fermented Soybean Firming (Serum, Cream) The History of Whoo-Cheonyuldan Ultimate Regenerating CNP LABORATORY-Vita B Energy (Ampule, Cream) MISSHA-Time Revolution on Night Repair Probio	

					Ampoule The History of Whoo Seaol- Radiant Brightening Balancer INNISFREE- Firming	
Soybean (SB) ( <i>Glycine max</i> )	<i>Bacillus subtilis</i> 168 (ATCC 33234, KCTC 2217)	Fermented Soybean Extract (FSB)	DPPH, superoxide radical, and hydroxyl radical scavenging activities, linoleic acid inhibition activity, and tyrosinase	The result is FSB had the better effects than the non-fermented soybean (SB) extract in DPPH scavenging activity, superoxide radical, hydroxyl radical, inhibition of autoxidation and inhibitory tyrosinase,		(26)
			inhibition activity		Energy Essence with Soybean Ferment	
	Natural	Soybean extract	In vivo ( <i>single-blind placebo-controlled study</i> )	The result showed that emulsion incorporating 4 % soybean extract exerts potential antiaging effects		(27)
<i>Agastache rugosa</i> (Fisch. & C.A.Mey.) Kuntze (Korean mint)	<i>Lactobacillus rhamnosus</i> HK-9	<i>Agastache rugosa</i> extract ferment (ARE-F)	In Vitro (HaCaT keratinocytes cell line) (ATCC No. CRL-2309)	ARE-F significantly decrease activity on the UV-B-induced ROS generation than ARE, and ARE-F can decrease the UV- B-induced proMMP-9 and -2 more effectively, ARE-F displayed higher tendencies to augment the UV-B-reduced total GSH content and SOD activity than ARE.		(28)
blackberry ( <i>Rubus fruticosus</i> B., FBB)	<i>Lactobacillus plantarum</i> JBM1 F5 (LP)	Fermented Blackberry (FBB)	In vitro (human foreskin fibroblast) (Hs68) In vitro (SKH-1 hairless mice)	FBB pretreatment inhibited UVB-mediated type-1 procollagen degradation, matrix metalloproteinase (MMP)-1 and MMP-2 protein expression, and suppressed nuclear factor- $\kappa$ B (NF- $\kappa$ B) activation as well as mitogen-activated protein kinase (MAPK) phosphorylation in Hs68. In Conclusion, FBB can be a potential candidate for protecting skin aging caused by UV irradiation.		(31)
Soy Milk	<i>Bifidobacterium</i>	<i>Bifidobacterium</i> fermented (BE)	In vitro (human keratinocytes) (HuMedia-KG2) And (Human skin fibroblasts)	BE soy milk extract significantly enhanced the production of hyaluronic acid (HA) compared with non fermented soy milk of human keratinocytes, human fibroblast. BE can prevent the cutaneous HA loss by age.	PRIMARY RAW DOYOU- Soy Milk Ferment Essence Toner	(32)
Rice bran	<i>Saccharomyces cerevisiae</i> and <i>Lactobacillus rhamnosus</i>	Fermented rice bran extracts (FRBEs)	In vitro (Human skin Fibroblast)	FRBE has significantly effect potential as an anti-aging agent by stimulating collagen synthesis, decreasing IL-1 $\alpha$ levels, and decreasing MMP-1 expression in skin fibroblasts.	BOTANIC FARM- Rice Ferment First Essence Grain- Ferment Cleansing Water JUARA-Sweet Black Tea & Rice Moisturizer ACWELL- Betaglutin Ultra Milk Oil LANBENA- Face	(33)

					Mask Blueberry Serum Sheet Mask Moisturize Whitening Anti-aging	
<i>Angelica tenuissima</i>	<i>Aspergillus oryzae</i>	Fermented by <i>Aspergillus oryzae</i> (FAT)	In vitro (HaCaT) (Human Keratinocyte) or Hs68 (Human foreskin Fibroblast) skin cells	FAT have a effect to stimulate wound healing rate at the basal condition, increase of procollagen Type-1 synthesis and secretion, decrease of MMP-1 and elastase expression. FAT can decrease of inflammatory responses caused by UVB irradiation via upregulation of photo- protective hemeoxygease-1 and suppression of proinflammatory cyclooxygenase-2 expression. The result of the studied verification of the anti- photoaging potential of FAT, it could be utilized as an effective ingredient in anti- aging and anti-wrinkle cosmetics.	MED-LINE- 365 Mineral Sunscreen SAIMDANG- Saromae Whitening Lotion	(34)
<i>Lavandula angustifolia</i>	<i>Pediococcus pentosaceus</i>	Fermented <i>L. angustifolia</i> Extract	In vitro (Human skin fibroblasts) (HS68 cells)	<i>L. angustifolia</i> extract fermented by <i>P. pentosaceus</i> DK1 significantly increased the anti-aging activities while decreasing MMP-1 expression and ROS generation, and increased collagen production in UVB-irradiated human skin fibroblasts.		(35)
<i>Panax ginseng</i>	<i>Lactobacillus brevis</i>	Fermented Red Ginseng (FRG)	In Vitro and Animal Study	Concentrations of uronic acid, polyphenols, and flavonoids, and antioxidant activities were greater in FRG compared to RG (Red Ginseng). The result of this studied is FRG offers increased antiwrinkle efficacy, whitening efficacy, and reduced toxicological potency compared to RG.	KIRE SKIN- Serum Fermented Red Ginseng Root HOLLIDA- Fermentation Red Ginseng Lifting Cream SOORYEHAN HYOBIDAM- Fermented Red Ginseng Anti-aging Sleeping Pack	(38)

Black ginseng is made from fresh or white ginseng by repetitive steamed and followed by hot air-drying process (usually 9 times),<sup>[17,18]</sup> The fermentation of black ginseng with *Saccharomyces cerevisiae* can increase more active ginsenosides.<sup>[19,20]</sup> The results show extracts significantly increased the expression of type I procollagen in human fibroblasts may be induced by the inhibition of MMP-1, MMP-2 and MMP-9 in a dose-dependent. The inhibition of these MMPs correlated with the upregulation of TIMP-2 due to FBG treatment.<sup>[21]</sup> The other study was designed to investigate the mechanism of anti-wrinkle and skin-whitening effect of FBG via in vitro assay (Human Fibroblast CCD-986) and (mouse melanoma B16F1 cells) and a human clinical trial of fermentation black ginseng in 23 subjects, were evaluated on day 0, at 4 weeks (28 days), and at 8 weeks (56 days). The result, current FBG cream (w/o) formulation exhibited anti-wrinkle and skin-whitening effects in

the clinical study, with no adverse effects. The anti-wrinkle effect of FBG was believed to involve the induction of type I collagen synthesis and inhibition of MMP-1 activity. The skin-whitening effect because FBG reduced melanogenesis, tyrosinase inhibition, and diminished DOPA oxidation.<sup>[22]</sup>

The aqueous extract of *Cyclopia intermedia*, milk powder and sucrose was fermented with *Streptococcus thermophilus*, the result of this study show that with ELISA analysis FH treatment reduced MMP-1 and -9 protein levels in the culture media of HaCaT cells in a dosedependent manner. Pretreatment with FH inhibited the decrease in TIMP-1 mRNA levels caused by UVB. These findings suggest that FH exhibit anti-oxidative and inflammatory effects that are mediated by lowering ROS production, suppressing p38, ERK, MEK and JNK activation, and down-regulating expression of MMPs.<sup>[23]</sup>

The butanol extract of *Asparagus cochinchinensis* with *Weissella cibaria*, These study results indicate that BAW may have a high anti-oxidative capacity (the IC50 value for BAW was 31.62 µg/ml) that is obtained via suppression of intracellular ROS production and DPPH radical scavenging activity. BAW pretreatment can recover the signaling pathway for iNOS-mediated COX-2 induction during the inflammatory process.<sup>[24]</sup>

Extracts of five plants fermented with *L. buchneri* such as *Triticum aestivum Leaf (TAB)*, *Avena sativa L (ASB)*., *Helianthus tuberosus L(HTB)*., *Glycine max Merr. with inner color-greenish(GMB)*, and *Smallanthus sonchifolius(SSB)*, lactic acid bacterial fermented extracts were produced. The fermentation process using 50% ethanol, and then the extract were concentrated with decompression concentrator, freeze-dried, and the lactic acid bacteria fermented extract powder was extracted. The result of comparing the efficacies of the five plant extract showed that TAB, HTB, and GMB had an inhibitory effect on the elastase activity in comparison to positive controls, and all of them significantly decreased the expression of type 1 procollagen upon UVB irradiation. MMPs are the major factor for UVB-induced photoaging and all the five fermented plant extract can prevent UVB-induced skin damage by inhibiting the mRNA expression and production of collagenase, and especially TAB and GMB they can reduced MMP-1 and MMP-9 mRNA levels, activating antioxidant enzymes, and suggested the possibility of an ROS scavenging ability, so revealing them as promising photo-protective agents.<sup>[25]</sup>

The Antioxidative and whitening activities of FSB and SB were evaluated by the



determination of DPPH, superoxide radical and hydroxyl radical scavenging activities, linoleic acid inhibition activity, and tyrosinase inhibition activity. The result FSB showed the higher antioxidative effect, and whitening activity than SB. These result demonstrated that the fermentation have a more excellent role than non fermentation effect in antioxidant and whitening.<sup>[26]</sup> In vivo single-blind placebo-controlled study in 11 healthy male were evaluated by applied to the cheeks for 12 weeks with 4% of concentrated extract of soybean was formulation in W/O emulsion compared with a control (without soybean extract) analys their effect on different skin parameters (moisture contents, elastysity and surface evaluation of living skin/SELS) were assessed, the result of the study showed that soybean extract have a potential effect for anti aging.<sup>[27]</sup>

Previous studies reported the ethanol extract of *A. rugosa* leaves improved by the fermentation with *L. rhamnosus* and *L. paracasei* has an antimelanogenic activity through the suppression of tyrosinase.<sup>[29]</sup> A hot water extract of *A. rugosa* leaves have skin anti-photoaging property against UV-B induced photooxidative stress in human keratinocytes via up-regulating GSH and SOD (30). In conclusion, the present studies demonstrates that the fermentation of *A. rugosa* leafmextract with a probiotic *Lactobacillus* strain improves its anti-photoaging skin properties through further augmenting UV-B-reduced total GSH and SOD activity levels and increasingly attenuating UV-B-induced ROS and MMP-2 and -9 levels in some sequential order.<sup>[28]</sup>

Fermented blackberry/FBB with *Lactobacillus plantarum* UVB-induced photoaging inhuman foreskin fibroblast (Hs68) and SKH-1 hairless mice. FBB pretreatment inhibited UVB-mediated type-1 procollagen degradation, suppressed nuclear factor-B (NF-B) activation as well as mitogen-activated protein kinase (MAPK) phosphorylation in Hs68 and matrix metalloproteinase (MMP)-1 and MMP-2 protein expression. In this studied prove that FBB decrease the wrinkle formation in dorsal skin and epidermal thickening in UVB- irradiated hairless mice. Moreover, UVB-induced Type-1 procollagen reduction and antioxidant enzyme inactivation with FBB treatment. These results of this studied suggest that FBB may have antiphoaging effects on UVB-induced wrinkle formation by maintaining the extracellular matrix density in the dermis, which occurs via regulation of ROS and related MAPK and NF-B signaling. The conclusion is FBB can be a potential candidate for protecting skin aging against UV irradiation.<sup>[31]</sup>

*Bifidobacterium* fermented soy milk/ BE significantly increase the production of HA in

monolayer cultures of THKC, and human skin fibroblasts in organotypic cultures of NHKC and in hairless mouse skin following topical application for 2 weeks compared with non-fermented soy milk. It is suggested that BE has the potential effect to increase the production of HA in the epidermis and dermis of human skin, and fermentation is necessary for the enhancing the activity.<sup>[32]</sup>

FRBE treatment could be used to increase collagen expression in human skin fibroblast, by synthesis of pro-collagen while inhibiting the synthesis of MMP-1 in cultured dermal fibroblast, reduce UV-induced inflammation by decreasing IL-1 $\alpha$ , a known inducer of MMP-1 production.<sup>[33]</sup>

*Angelica tenuissima* root extract fermented with *Aspergillus oryzae* (FAT) able to increase wound filling under basal conditions in keratinocytes forming the epidermal layer. FAT was able the suppression of UVB mediated wrinkle formation, decreased MMP-1 and elastase activities. Additionally FAT showed have effect as photoaging of skin trough increased PIP levels and decreased MMP-1 and elastase activitie, and regulation of the antioxidative enzyme HO-1 and COX-2 as the anti-inflammatory enzyme for health due to UV exposure.<sup>[34]</sup>

*Lavandula angustifolia* fermented with *Pediococcus pentosaceus* in the studied were evaluated UVB induced ROS generation, collagen and MMP-1 expression compared treated fermented and unfermented *Lavandula angustifolia*. The result showed with fermentation increase safety and activity (Antioxidative and anti aging activities) by increased the level of luteolin and apigenin by aglyconation of their glucosides. In Conclution fermented *Lavandula angustifolia* could have applicability as an anti-aging agent in cosmetics products.<sup>[35]</sup>

*Panax Gingseng* fermented with *Lactobacillus brevis* (FRG), is produced by aqueous extract of red ginseng (RG). In this studies, we investigated the skin safety and potential ascosmeceutical ingredients in vitro and in guinea pig skin by spreading of FRG in cojunction with RG. The results showed that fermentation significantly enhanced the overall radical-scavenging activities of ginseng, which could be explained by the increased amount of antioxidant compounds, especially polyphenol compounds. The IC<sub>50</sub> of FRG also higher compared with RG, and in a primary skin irritation test showed FRG were classified as a nonirritating materials. The result of this studies showed fermentation of RG increased of



ginsenoside metabolites, such as Rg3, Rg5, Rk1, compound K, Rh1, F2, Rg2, and flavonoids content. Therefore, FRG offers increased antiwrinkle efficacy, whitening efficacy, and reduced toxicological potency compared with RG.<sup>[38]</sup>

Some fermented plants that are used in cosmetic products for the treatment of aging such as *Hordeum vulgare* ferment, *Leuconostoc*/radish root ferment filtrate, Potato extract ferment, and *Lactobacillus*/acerola Cherry Ferment, there are still no literature or research journals related to these fermented plants for aging treatment.

### **Innovation of Fermented Active For Anti-Aging Treatment**

The demand for skin care products with herbal ingredients increased because consumers perceive these agents as natural, healthy, nontoxic and full of beneficial effects. The development of innovative natural products to deal with the signs of skin aging, caused by various external and internal factors. One of the external factors that influence skin aging is sun exposure (UV radiation), which causes skin photoaging. Free radicals that are formed as a result of UV radiation cause the degradation of unsaturated lipids from intercellular space, an increase in TEWL that causes dry skin, and changes in the structure of protein- collagen and elastin fibrillar. Aging occurs in every layer of the skin, primarily due to the degradation of all components.

The challenge of nature-derived product as an active ingredient for anti aging are lower penetration and high compound instability of various cosmetic products for sustained and enhanced compound delivery to the beauty-based skin therapy, because of its overly hydrophilic or lipophilic nature and also in terms of stability, because natural materials are susceptible to oxidation which causes changes the nature and color of the product.

To overcome these disadvantages, solid-state fermentation and nano-structured lipid (NLC) carrier delivery technologies are used. Solid-state fermentation is defined as process used to produce some metabolites generated by microorganisms grown on a solid such as (Soybean, Rice bran, Blackberry, etc.), process consists of depositing a solid culture substrate in a temperature-controlled room with low water level. Fermented Active is used to increase absorption into the skin, and improve their desirable pharmacological activities of non-fermented plant.<sup>[36]</sup> NLC offers several advantages over conventional passive delivery, such as increased surface area, higher solubility, improved stability, controlled release, reduced skin irritancy, and protection from degradation.<sup>[37]</sup> NLC is a blend of mixture of solid lipids

along with spatially incompatible liquid lipids. The compositions of NLS is solid lipid, liquid lipids, aqueous surfactant, and co-emulsifiers.<sup>[39]</sup> NLC could provide better skin hydration and occlusion compared to traditional delivery systems, because the ingredients lipids content has an occlusive action to prevent water loss from the skin through evaporation.<sup>[40]</sup> Therefore we choose to use NLC as a active delivery system suitable for anti aging serum.

The new innovation we propose is the NLC formulation of a mixture of several fermented plants and peptides for the treatment of skin aging serum, with product claims: energize, repair and restore the skin elasticity resulting in firm, smooth, and youthful skin. The formula is paraben free, mineral oil free, alcohol free, and benzophenone free. The Fermentation Process of plant material does not use alcohol.

The Innovation of our new formulation, “fermented of (soybean, rice bran, and panax gingseng) with *Lactobacillus buchneri* and peptides (Pentapeptide-18, and Palmitoyl Hexapeptide-12) in nanostructured lipid carriers (NLC). The formulation parameters affecting the stability of active ingredients after incorporation into NLC were evaluated including types of lipids, and types of surfactant. The evaluation of the formulation included organoleptics, (particle size, morphology, entrapment efficiency, dynamic light scattering, differential scanning calorimetry, and transmission electron microscopy) for characterization of lipid nanoparticles,<sup>[41]</sup> and in vitro study (in human fibroblast), and (HaCaT Keratinocytes) to proved the efficacy of formulation for anti aging treatment.

## CONCLUSIONS

The cosmetics world is always changing following the trends and efforts to improve the quality of products to get customers. The trend of using cosmetics made from plants encourages the desire of cosmetic companies and researchers to find out about plant ingredients that can be used in cosmetic products. various studies have shown that the fermentation process can increase phytochemical content, effective absorption and increase the safety of active ingredients. Thus, fermented natural extracts, especially animal extracts, are largely studied. Even though several scientific reports on the importance of cosmetic fermented plant extracts are available there are still many fermented plants that have been used on the market with anti-aging claims for which there is no research literature, and the lack of reported clinical studies and human footprints do not adequately support their benefits and effectiveness. Further detailed studies on the molecular mechanisms of the cosmeceutical properties of fermented plant extracts are needed. Fermented active from plants can be a

possible hope for preventing signs of aging and for the sustainable development of cosmetic products with consumer and environmental protection.

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AN EXPERIENCE OF OUTCOME FROM RUBBER BAND LIGATION OF HAEMORRHOIDS WITH SPECIAL EMPHASIS IN THIRD DEGREE HAEMORRHOIDS IN CMH MANGLA. A PROSPECTIVE STUDY (dashboard/abstract\_id/)

Zahid Saeed\* and Dr. Huma Naeem Tareen

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17149](https://www.wjpr.net/abstract_show/17149)) Article View ([https://www.wjpr.net/abstract\\_show/17149](https://www.wjpr.net/abstract_show/17149)) Article Download ([https://www.wjpr.net/abstract\\_file/17149](https://www.wjpr.net/abstract_file/17149)) [ DOI : 10.20959/wjpr20218-20961 ]



A NOVEL RP-HPLC METHOD DEVELOPMENT AND VALIDATION FOR THE ESTIMATION OF DEXLANSOPRAZOLE IN BULK AND EXTENDED-RELEASE CAPSULES (dashboard/abstract\_id/)

Lakshmi Keerthi B.\*, Deepthi R., Dr. Srinivasa Rao Y. and VaraprasadaRao K.

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17159](https://www.wjpr.net/abstract_show/17159)) Article View ([https://www.wjpr.net/abstract\\_show/17159](https://www.wjpr.net/abstract_show/17159)) Article Download ([https://www.wjpr.net/abstract\\_file/17159](https://www.wjpr.net/abstract_file/17159)) [ DOI : 10.20959/wjpr20218-20945 ]



PHARMACOGNOSTICAL AND PHYTOPHARMACOLOGICAL EVALUATION OF DURANTA REPENSE L. (dashboard/abstract\_id/)

\*Pooja Bapusaheb Divekar, \*Shubham P. Varpe, \*Vishal S. Balme and Rushikesh A. Kuldharan

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17161](https://www.wjpr.net/abstract_show/17161)) Article View ([https://www.wjpr.net/abstract\\_show/17161](https://www.wjpr.net/abstract_show/17161)) Article Download ([https://www.wjpr.net/abstract\\_file/17161](https://www.wjpr.net/abstract_file/17161)) [ DOI : 10.20959/wjpr20218-20949 ]



NEONATAL SCREENING FOR CONGENITAL HYPOTHYROIDISM AT BIMS HOSPITAL, BELAGAVI: ORIGINAL RESEARCH ARTICLE (dashboard/abstract\_id/)

Priya Patil, Padmaja Nikam, Nagaraj Hosamani, Shailesh Patil and Shashikant Nikam\*

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QUALITY ASSESSMENT OF RATHULUNU THAILAYA: A HERBAL OIL FOR PEENASA (ALLERGIC RHINITIS) (dashboard/abstract\_id/)

S. N. L. Narathota\*, A. P. A. Jayasiri and L. D. R. De Silva

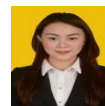
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THE IMPORTANCE OF FERMENTED PLANT EXTRACT FOR ANTI AGING IN COSMETICS PRODUCT (dashboard/abstract\_id/)

Chintia Yoseph\*, Christina Avanti, Mediana Hadiwidjaja and Kenny Briliani

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17167](https://www.wjpr.net/abstract_show/17167)) Article View ([https://www.wjpr.net/abstract\\_show/17167](https://www.wjpr.net/abstract_show/17167)) Article Download ([https://www.wjpr.net/abstract\\_file/17167](https://www.wjpr.net/abstract_file/17167)) [ DOI : 10.20959/wjpr20218-20974 ]



CO ENZYME Q10 –AN ADJUNCTIVE IN THE PERIODONTAL MANAGEMENT OF TYPE II DIABETIC PATIENTS (dashboard/abstract\_id/)

\*Dr. Joseph Kishore Reddy, Dr. Darshan B. M., Dr. Suchetha A., Dr. Sapna N., Dr. Apoorva S. M., Dr. Divya Bhat

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17168](https://www.wjpr.net/abstract_show/17168)) Article View ([https://www.wjpr.net/abstract\\_show/17168](https://www.wjpr.net/abstract_show/17168)) Article Download ([https://www.wjpr.net/abstract\\_file/17168](https://www.wjpr.net/abstract_file/17168)) [ DOI : 10.20959/wjpr20218-20978 ]



SOLUBILITY ENHANCEMENT OF PIROXICAM BY MIXED HYDROTROPY TECHNIQUE (dashboard/abstract\_id/)

Jalde Swapna Raghunath\*, Jaiswal N. R., Chavan G. C., Zambare K. K. and Rahul M. Sagde

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17172](https://www.wjpr.net/abstract_show/17172)) Article View ([https://www.wjpr.net/abstract\\_show/17172](https://www.wjpr.net/abstract_show/17172)) Article Download ([https://www.wjpr.net/abstract\\_file/17172](https://www.wjpr.net/abstract_file/17172)) [ DOI : 10.20959/wjpr20218-20984 ]



POST-MARKETING SURVEILLANCE STUDY TO EVALUATE THE EFFICACY AND SAFETY FOR THE COMBINATION OF PARACETAMOL, PHENYLEPHRINE AND CHLORPHENIRAMINE MALEATE IN PAEDIATRIC PATIENTS OF COMMON COLD (dashboard/abstract\_id/)

Mayuresh Kiran, Lalit Pawaskar\*, Pramita Waghambare and Shaheen Sheikh

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17182](https://www.wjpr.net/abstract_show/17182)) Article View ([https://www.wjpr.net/abstract\\_show/17182](https://www.wjpr.net/abstract_show/17182)) Article Download ([https://www.wjpr.net/abstract\\_file/17182](https://www.wjpr.net/abstract_file/17182)) [ DOI : 10.20959/wjpr20218-21002 ]



KNOWLEDGE AND PRACTICE OF STAFF NURSES REGARDING PAIN ASSESSMENT AND MANAGEMENT OF POST-OPERATIVE PATIENTS (dashboard/abstract\_id/)

Khush Kumar Soni\*, Pawan Joshi and Madhu Mali

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A COMPARATIVE STUDY IN THE MANAGEMENT OF FISTULA IN ANO (dashboard/abstract\_id/)

Manfool Puniya\*

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Review\_Article

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**ACETONE, THE THIRD KETONE BODY. I. PRESENCE IN THE HUMAN BODY IN HEALTH AND DISEASE****José D. Méndez\***ABSTRACT ([https://www.wjpr.net/abstract\\_show/17059](https://www.wjpr.net/abstract_show/17059))PDF ([https://www.wjpr.net/abstract\\_file/17059](https://www.wjpr.net/abstract_file/17059)) [

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**ACETONE, THE THIRD KETONE BODY. III. DEGRADATION BY OZONE AND HYDROGEN PEROXIDE AND THE DEVELOPMENT OF DIABETES MELLITUS. A HYPOTHESIS****José D. Méndez\***ABSTRACT ([https://www.wjpr.net/abstract\\_show/17060](https://www.wjpr.net/abstract_show/17060))PDF ([https://www.wjpr.net/abstract\\_file/17060](https://www.wjpr.net/abstract_file/17060)) [

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**EVALUATION OF THE EFFECT OF ADMINISTRATION OF ETHANOL EXTRACTS OF ANDROGRAPHIS PANICULATA LEAVE AND ZINGIBER OFFICINALE RHIZOIDS ON SERUM LIPID PROFILE IN NORMAL WISTAR RATS.****\*Essien N. E., Nyah N. U., Bobson P. M. and Tom E. J.**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17064](https://www.wjpr.net/abstract_show/17064))PDF ([https://www.wjpr.net/abstract\\_file/17064](https://www.wjpr.net/abstract_file/17064)) [

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**COMPARISON OF L-ASPARAGINASE ENZYME PURIFICATION METHODS FROM RECOMBINANT ESCHERICHIA COLI FOR LEUKEMIA THERAPY: A REVIEW****Soni Muhsinin\*, Nurlaella Solihah, Rahma Ziska and Ira Adiyati Rum**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17065](https://www.wjpr.net/abstract_show/17065))PDF ([https://www.wjpr.net/abstract\\_file/17065](https://www.wjpr.net/abstract_file/17065)) [

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**PHARMACOECONOMICS AND ITS IMPACT ON AYUSHMAN BHARAT PROJECTS IN RURAL INDIA****Vismaya Annie Vinod\*, Sowparnika Treasa Sabu and Shaiju S. Dharan**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17075](https://www.wjpr.net/abstract_show/17075))PDF ([https://www.wjpr.net/abstract\\_file/17075](https://www.wjpr.net/abstract_file/17075)) [

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**AN OVERVIEW ON METFORMIN USE ANTICANCER DRUG THERAPY**

Vishal Galave\*, Ganesh Phadtare and Kishor Otari

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**REVIEW OF NMR SPECTROSCOPY: BASIC PRINCIPLES, CONCEPTS AND APPLICATIONS IN MEDICAL AND DENTISTRY**

Khushnuma F. Elavia\* and Parinaz F. Elavia

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**A LITERATURE REVIEW ON IMPORTANCE OF PRESCRIPTION AUDITING AND ASSESSING RATIONAL AND IRRATIONAL PRESCRIBING PATTERN**

Bismi S.\*, Chinthra Chandran, Deepthi Mariya Davis, Dhanya S. S., Dhanya Dharman and Shaiju S. Dharan

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**RECENT ADVANCES IN AYURVEDA**

Dr. Priyanka A. Doras\*, Dr. Ashish J. Rajani and Dr. G. H. Kodwani

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DOI :10.20959/wjpr20218-20804 ]

**REVIEW ON SHRAMAHARA DRUGS DESCRIBE IN VARIOUS BRIHATRAYI AND NIGHANTUS**

Pinal Vihol\*, Kamalesh Bhogayata, Dilip Jani and Suman Singh

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DOI :10.20959/wjpr20218-20821 ]

**EPILEPSY IN CHILDREN & IT's AYURVEDIC PROSPECTIVE**

Dr. Anchal Kumari\*, Dr. Laxmi and Prof. Mithilesh Verma

[ABSTRACT \(https://www.wjpr.net/abstract\\_show/17081\)](https://www.wjpr.net/abstract_show/17081)[PDF \(https://www.wjpr.net/abstract\\_file/17081\)](https://www.wjpr.net/abstract_file/17081) [

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**CONCEPTUAL REVIEW ON AARTA-VAHA STROTAS WITH SPECIAL REFERENCE TO STROTODUSHTI**

Dr. Priyanka M. Waghmare\* and Dr. Bhaoorao E. Borkar

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DOI :10.20959/wjpr20218-20831 ]

**ROLE OF KARAPAS BEEJ IN SHUKRAALPATA W.S.R. TO OLIGOSPERMIA**

Dr. Nilesh Parshram Nikam\* and Dr. Rita Sudhir Gayakwad

[ABSTRACT \(https://www.wjpr.net/abstract\\_show/17083\)](https://www.wjpr.net/abstract_show/17083)[PDF \(https://www.wjpr.net/abstract\\_file/17083\)](https://www.wjpr.net/abstract_file/17083) [

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**DESIGN OF EXPERIMENTS FOR ANALYTICAL METHOD AND VALIDATION**

Heena Ninama\*, Dr. Chainesh Shah and Dr. Umesh Upadhyay

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**REVIEW OF DHAULA PHINDAWRI (Nothosaerva brachiata Linn. Wight.) A FOLKLORE DRUG USED IN MANAGEMENT OF URINARY STONES**

Prakash Mahadev Sutar\*, Sunny C. Patil and Mrunal Rajabhau Akre

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DOI :10.20959/wjpr20218-20860 ]

**A REVIEW ON BLACK FUNGI CLINICAL AND PATHOGENIC AND POST COVID COMPLICATIOND**

Dr. Manish Kumar\*, Dr. Amit Jaiswal and Imad Ahmad

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DOI :10.20959/wjpr20218-20864 ]

**A REVIEW ON BREAST CANCER AND ITS MANAGEMENT**

Akshaya Manohar Agre\*, Akshata Chandrakant Upade, Manali Anarsingh Yadav and Sayali Bajarang Kumbhar

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DOI :10.20959/wjpr20218-20868 ]

**LITERATURE STUDY OF TOXIC HERBS IN SUSHRUT SAMHITA**

Amruta Tembhurnikar\*, Namrata Chouragade, Anand Tembhurnikar and Prafulla Fadnavis

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DOI :10.20959/wjpr20218-20875 ]



**ORGANOGELE: AN IDEAL DRUG DELIVERY CARRIER**

Jisu Das\*, Bedanta Bhattacharjee, Jagya Jyoti Dutta and Tirna Paul

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17089](https://www.wjpr.net/abstract_show/17089))PDF ([https://www.wjpr.net/abstract\\_file/17089](https://www.wjpr.net/abstract_file/17089))

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**PATTERN OF BICARBONATE IN PATIENTS ON MAINTENANCE HEMODIALYSIS**

Anchana Raj\* and E. Sam Jeevakumar

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17090](https://www.wjpr.net/abstract_show/17090))PDF ([https://www.wjpr.net/abstract\\_file/17090](https://www.wjpr.net/abstract_file/17090))

DOI :10.20959/wjpr20218-20885 ]

**A CRITICAL REVIEW ON KALA SHARIR W.S.R TO MAMSADHARA KALA**

Dr. Kannan Mani\*, Vd. Sheetal A. Agrawal, Vd. Ashish S. Agrawal and Vd. Priyanka K. Dighde

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17091](https://www.wjpr.net/abstract_show/17091))PDF ([https://www.wjpr.net/abstract\\_file/17091](https://www.wjpr.net/abstract_file/17091))

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**CONCEPT OF AAHAR ACCORDING TO PRAKRITI FOR LONGEVITY**

Kiran Kumari\*, Shila Chhipa, Pankaj Marolia and Man Mohan Sharma

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17092](https://www.wjpr.net/abstract_show/17092))PDF ([https://www.wjpr.net/abstract\\_file/17092](https://www.wjpr.net/abstract_file/17092))

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**MYRISTICA FRAGRANS (HOUTT): A BRIEF REVIEW**

Ihjas Habeeb M.\*, Karunakar Hegde and Shabaraya A. R.

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**ROLE OF MUCUNA PRURIENS IN THE MANAGEMENT OF PARKINSON'S DISEASE: A SYSTEMATIC REVIEW**

A. M. Muthalib\*, M. M. M. Nifras and S. M. Mujahid

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**HISTORICAL BACKGROUND OF CANNABIS SATIVA: A REVIEW**

Vishal Bhosale\*, Swapnil Shinde, Vaibhav Bhosale and Akanksha Shinde

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**AN OVERVIEW ON PRINCIPLE, DIAGNOSIS AND TREATMENT OF AYURVEDA**

\*Vrushali Jagtap, Nisha Mandhare, Aboli Jagtap, Vishal Galave, Ankita Phadtare, Omkar Kolhe

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**PSOROLIN B – A NEW ‘TAXON’ IN THE TREATMENT OF PSORIASIS AND THE SCIENCE OF ELECTROCHEMICAL HOMEOSTASIS**

Aruna V.\*, Amruthavalli G. V. and Gayathri R.

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**YAGYA A HOLISTIC APPROCH FOR TREATING COVID-19 CONDITIONS– A CLASSICAL REVIEW**

Devesh Panwar\* and Ravi Raj Singh

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DOI :10.20959/wjpr20218-20905 ]

**A REVIEW ON MICRONEEDLES: RECENT ADVANCEMENTS AND ITS APPLICATION**

\*Gourav Singh, Prasanta Kumar Biswal, and Surya Narayan Das

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17100](https://www.wjpr.net/abstract_show/17100))PDF ([https://www.wjpr.net/abstract\\_file/17100](https://www.wjpr.net/abstract_file/17100))

DOI :10.20959/wjpr20218-20906 ]

**REVIEW ON ACUTE ONSET STILL DISEASE**

Nefcy Navas\*, Dhanya Dharman and Shaiju S. Dharan

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17101](https://www.wjpr.net/abstract_show/17101))PDF ([https://www.wjpr.net/abstract\\_file/17101](https://www.wjpr.net/abstract_file/17101))

DOI :10.20959/wjpr20218-20911 ]

**ROLE OF CLINICAL PHARMACIST IN CRITICAL CARE AREAS: A REVIEW**

Joanna Joy\*, Dhanya Dharman, Shaiju S. Dharan

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17102](https://www.wjpr.net/abstract_show/17102))PDF ([https://www.wjpr.net/abstract\\_file/17102](https://www.wjpr.net/abstract_file/17102))

DOI :10.20959/wjpr20218-20912 ]

**DENDRIMER ARCHITECTURE: A COMPREHENSIVE REVIEW**

Punya Prakash\*, Krishnananda Kamath Kunjal and A. R. Shabaraya

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17103](https://www.wjpr.net/abstract_show/17103))PDF ([https://www.wjpr.net/abstract\\_file/17103](https://www.wjpr.net/abstract_file/17103))

DOI :10.20959/wjpr20218-20915 ]





**AGNI; - PRIME FACTOR FOR LONGEVITY****\*Dr. Surbhi Pankaj, Dr. Pankaj Marolia and Dr. Man-Mohan Sharma**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17104](https://www.wjpr.net/abstract_show/17104))PDF ([https://www.wjpr.net/abstract\\_file/17104](https://www.wjpr.net/abstract_file/17104)) [

DOI :10.20959/wjpr20218-20917 ]

**RESEARCH ARTICLE ON PATHA WITH SPECIAL REFERENCE TO STANYASHODHANA FROM THE VIEW OF SAMHITA A LITRERARY REVIEW****Ajaya D. Yerne\*, Arun U. Bhatkar and Mrunal R. Akre**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17105](https://www.wjpr.net/abstract_show/17105))PDF ([https://www.wjpr.net/abstract\\_file/17105](https://www.wjpr.net/abstract_file/17105)) [

DOI :10.20959/wjpr20218-20918 ]

**RADIOPHARMACEUTICAL IN NUCLEAR PHARMACY & MEDICINE AND THEIR THERAPEUTICS APPLICATION IN HEALTH CARE SYSTEM****Tushar K. Vaghasiya, Mitesh Kumar Malaviya\*, Ravi J. Kotadiya, Ramona Vas, Virendrasinh K. Gohil**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17106](https://www.wjpr.net/abstract_show/17106))PDF ([https://www.wjpr.net/abstract\\_file/17106](https://www.wjpr.net/abstract_file/17106)) [

DOI :10.20959/wjpr20218-20920. ]

**REVIEW ON DRUG DOSAGE IN KAUMARBHRITYA****Dr. Sneha Gutkar\* and Dr. Sandeep Kumar Bhagat**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17107](https://www.wjpr.net/abstract_show/17107))PDF ([https://www.wjpr.net/abstract\\_file/17107](https://www.wjpr.net/abstract_file/17107)) [

DOI :10.20959/wjpr20218-20921 ]

**POST COVID-19 PANDEMIC MENTAL HEALTH CHALLENGES****Abdulla Shareef\*, Amal John James, Dhanya Dharman and Shaiju S. Dharan**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17108](https://www.wjpr.net/abstract_show/17108))PDF ([https://www.wjpr.net/abstract\\_file/17108](https://www.wjpr.net/abstract_file/17108)) [

DOI :10.20959/wjpr20218-20924 ]

**REVIEW OF AGNIKARMA IN CHIKITSA OF ARSHAS****Dr. Anitha A. S.\*, Dr. Rakesh R. N. and Dr. Sahana Kamath**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17109](https://www.wjpr.net/abstract_show/17109))PDF ([https://www.wjpr.net/abstract\\_file/17109](https://www.wjpr.net/abstract_file/17109)) [

DOI :10.20959/wjpr20218-20933 ]

**HEMODYNAMICS OF ORBITAL VESSELS IN PATIENTS WITH AND WITHOUT DIABETIC RETINOPATHY USING COLOUR DOPPLER IMAGING****\*Dr. Christina Samuel and Dr. Chris Joseph Chellaraj**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17110](https://www.wjpr.net/abstract_show/17110))PDF ([https://www.wjpr.net/abstract\\_file/17110](https://www.wjpr.net/abstract_file/17110)) [

DOI :10.20959/wjpr20218-20935 ]

**ANATOMICAL AND PHYSIOLOGICAL STUDY OF SHUKRA DHATU****Prathish Prabhu\*, Nagaraj S. and Ravi K. V.**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17111](https://www.wjpr.net/abstract_show/17111))PDF ([https://www.wjpr.net/abstract\\_file/17111](https://www.wjpr.net/abstract_file/17111)) [

DOI :10.20959/wjpr20218-20938 ]

**DANTASHARKARA W.S.R TO DENTAL CALCULUS AND ITS AYURVEDIC MANAGEMENT: A CONCEPTUAL STUDY****Dhara Makwana\*, Shreyas Bhalodia and Hardik Chudasama**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17112](https://www.wjpr.net/abstract_show/17112))PDF ([https://www.wjpr.net/abstract\\_file/17112](https://www.wjpr.net/abstract_file/17112)) [

DOI :10.20959/wjpr20218-20940 ]

**POST CORONAVIRUS DISEASE MUCORMYCOSIS:- A DEADLY ADDITION TO THE PANDEMIC SPECTRUM****Sukanya Sunil Tawade\*, Siddhant Anand Sawant and Aakanksha Sunil Kasale**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17113](https://www.wjpr.net/abstract_show/17113))PDF ([https://www.wjpr.net/abstract\\_file/17113](https://www.wjpr.net/abstract_file/17113)) [

DOI :10.20959/wjpr20218-20941 ]

**REVIEW ARTICLE ON KUKKUTANDA TWAKA BHASMA****Dr. Aabha Pandey\*, Dr. M. Gopi Krishna and Dr. Shahsidhar Jeeru**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17114](https://www.wjpr.net/abstract_show/17114))PDF ([https://www.wjpr.net/abstract\\_file/17114](https://www.wjpr.net/abstract_file/17114)) [

DOI :10.20959/wjpr20218-20943 ]

**A REVIEW ARTICLE ON PATHYA KALPANA W.S.R.TO ASHTAGUNA MANDA****Dr. Kanchan Sharma\* and Dr. M. R. Pandya**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17115](https://www.wjpr.net/abstract_show/17115))PDF ([https://www.wjpr.net/abstract\\_file/17115](https://www.wjpr.net/abstract_file/17115)) [

DOI :10.20959/wjpr20218-20944 ]

**BIOCHEMICAL AND PHYSIOLOGICAL MODULATIONS OF CELL ORGANELLES INDUCED BY MOLECULAR CROWDING****\*Y. K. Lahir and A. V. Chitre**ABSTRACT ([https://www.wjpr.net/abstract\\_show/17116](https://www.wjpr.net/abstract_show/17116))PDF ([https://www.wjpr.net/abstract\\_file/17116](https://www.wjpr.net/abstract_file/17116)) [

DOI :10.20959/wjpr20218-20947 ]





**NANOSTRUCTURED LIPID CARRIERS FOR VARIOUS DRUG DELIVERY SYSTEMS**

Shweta Chaudhari\* and Monika Ola

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17117](https://www.wjpr.net/abstract_show/17117))PDF ([https://www.wjpr.net/abstract\\_file/17117](https://www.wjpr.net/abstract_file/17117)) [

DOI :10.20959/wjpr20218-20953 ]

**NEUROLOGICAL MANIFESTATION OF COVID-19: A SHORT REVIEW**

Neelakshi Pal and Kuntal Gupta\*

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17118](https://www.wjpr.net/abstract_show/17118))PDF ([https://www.wjpr.net/abstract\\_file/17118](https://www.wjpr.net/abstract_file/17118)) [

DOI :10.20959/wjpr20218-20957 ]

**PHOSPHODIESTERASE FAMILY: CHARACTERIZATION & PROPERTIES**

Ajay Kharche\* and Dr. Vikas Jain

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17119](https://www.wjpr.net/abstract_show/17119))PDF ([https://www.wjpr.net/abstract\\_file/17119](https://www.wjpr.net/abstract_file/17119)) [

DOI :10.20959/wjpr20218-20958 ]

**A CLINICO-ANATOMICAL CONSOLIDATED DESCRIPTION OF SHADCHKARA & MARAMA – A CONCEPTUAL STUDY**

\*Dr. Arvind Kumar Yadav, Dr. Rita Marwaha, Dr. Nisha Bhalerao, Dr. Swatantra Kumar Chourasia and Dr. Shraddha Sharma

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17120](https://www.wjpr.net/abstract_show/17120))PDF ([https://www.wjpr.net/abstract\\_file/17120](https://www.wjpr.net/abstract_file/17120)) [

DOI :10.20959/wjpr20218-20964 ]

**RECENT TRENDS IN PREVENTION OF DENTAL CARIES AND PERIODONTAL DISEASES: A REVIEW**

Dr. Khoisnam Dyashwari Devi\*, Dr. L. Vamsi Krishna Reddy, Dr. Pooja Sinha, Dr. B. S. Goutham, Dr. Abhishek Verma and Dr. Shreya Singh

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17121](https://www.wjpr.net/abstract_show/17121))PDF ([https://www.wjpr.net/abstract\\_file/17121](https://www.wjpr.net/abstract_file/17121)) [

DOI :10.20959/wjpr20218-20966 ]

**AYURVEDIC REVIEW ON JARA AND ITS MANAGEMENT THROUGH CLASSICAL APPROACH**

Dr. Prabhu Nath Das\* and Dr. Suresh Kumar Jaiswara

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17122](https://www.wjpr.net/abstract_show/17122))PDF ([https://www.wjpr.net/abstract\\_file/17122](https://www.wjpr.net/abstract_file/17122)) [

DOI :10.20959/wjpr20218-20969 ]

**INCIDENCE OF ASYMPTOMATIC BACTERIURIA IN DISSIMILAR INHABITANTS**

Samina Ali Kakar, Kaleemullah MAndokhail, Durdana Ghulam Mohammad, Abdul Samad Panezai, Nazia Panezai and Mir Zaman Kasi\*

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17151](https://www.wjpr.net/abstract_show/17151))PDF ([https://www.wjpr.net/abstract\\_file/17151](https://www.wjpr.net/abstract_file/17151)) [

DOI :10.20959/wjpr20218-19518 ]

**COMPREHENSIVE REVIEW ON PHYSIOLOGICAL EFFECTS OF EUGENOL**

Mohammed Ajmal P.\*, Ashoka Shenoy and A. R. Shabaraya

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17152](https://www.wjpr.net/abstract_show/17152))PDF ([https://www.wjpr.net/abstract\\_file/17152](https://www.wjpr.net/abstract_file/17152)) [

DOI :10.20959/wjpr20218-20618 ]

**THE USE OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDs) IN PATIENTS WITH COVID-19**

Sreevidya S.\*, Dhanya Dharman and Shaiju S. Dharan

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17153](https://www.wjpr.net/abstract_show/17153))PDF ([https://www.wjpr.net/abstract\\_file/17153](https://www.wjpr.net/abstract_file/17153)) [

DOI :10.20959/wjpr20218-20714 ]

**A REVIEW ON RASAYANA KARMA OF JEEVANTI: AN AYURVEDIC HERB**

Dr. Pooja Panchaware\*, Dr. T. A. Pansare and Dr. Ashwini Makadi

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17154](https://www.wjpr.net/abstract_show/17154))PDF ([https://www.wjpr.net/abstract\\_file/17154](https://www.wjpr.net/abstract_file/17154)) [

DOI :10.20959/wjpr20218-20845 ]

**AYURVEDIC ASPECT OF PELVIC ORGAN PROLAPSE- A REVIEW**

Komal Balwant Kothawale\*, Shrikant Atmaram Dighe and Bhagyashri Mahavir Khot

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17156](https://www.wjpr.net/abstract_show/17156))PDF ([https://www.wjpr.net/abstract\\_file/17156](https://www.wjpr.net/abstract_file/17156)) [

DOI :10.20959/wjpr20218-20892 ]

**A REVIEW ON: RP-HPLC**

Pooja Shantaram Madhurkar\*, Dr. S. B. Bhawar and M. H. Kolhe

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17157](https://www.wjpr.net/abstract_show/17157))PDF ([https://www.wjpr.net/abstract\\_file/17157](https://www.wjpr.net/abstract_file/17157)) [

DOI :10.20959/wjpr20218-20894 ]

**ION EXCHANGE CHROMATOGRAPHY AND ITS APPLICATIONS**

N. Mounik\*, Chiranjeevi P., Srinivasa Rao Y., Varaprasada Rao K. and Deepthi R.

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17160](https://www.wjpr.net/abstract_show/17160))PDF ([https://www.wjpr.net/abstract\\_file/17160](https://www.wjpr.net/abstract_file/17160)) [

DOI :10.20959/wjpr20218-20946 ]



**BIOLOGICAL ACTIVITY DETERMINATION OF HUMAN CHORIONIC GONADOTROPIN IN WISTAR RATS**

K. Sri Devi\* and D. Harshitha

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17162](https://www.wjpr.net/abstract_show/17162)) PDF ([https://www.wjpr.net/abstract\\_file/17162](https://www.wjpr.net/abstract_file/17162)) [ DOI :10.20959/wjpr20218-20955 ]

**ANTIMICROBIAL PROPERTIES OF DUSHIVISHARI AGAD AND ITS INGREDIENTS: AN OVERVIEW**

Rachana Phartale\*, Vaibhav Phartale and Deepali Aher

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17166](https://www.wjpr.net/abstract_show/17166)) PDF ([https://www.wjpr.net/abstract\\_file/17166](https://www.wjpr.net/abstract_file/17166)) [ DOI :10.20959/wjpr20218-20970 ]

**SIMPLIFIED TREATMENT FOR DIVERSIFIED FISTULA IN ANO**

\*Dr. Mohammad Amir, \*Dr. Arun Kumar Singh and \*Dr. Mrigank Shekhar

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17169](https://www.wjpr.net/abstract_show/17169)) PDF ([https://www.wjpr.net/abstract\\_file/17169](https://www.wjpr.net/abstract_file/17169)) [ DOI :10.20959/wjpr20218-20980 ]

**PANDUROGA DESCRIBED IN BRUHATRAYIS: AN AYURVEDIC LITERATURE REVIEW**

Dr. Trupti Arun Thak\*, Dr. Mrityunjay Sharma and Dr. Archana Dachewar

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17170](https://www.wjpr.net/abstract_show/17170)) PDF ([https://www.wjpr.net/abstract\\_file/17170](https://www.wjpr.net/abstract_file/17170)) [ DOI :10.20959/wjpr20218-20982 ]

**A REVIEW: HERBAL MEDICINES AND SCREENING MODELS FOR HEPATOPROTECTIVE AGENTS**

Pratiksha Kothari\*, Ashvini Andhale and Santosh Waghmare

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17171](https://www.wjpr.net/abstract_show/17171)) PDF ([https://www.wjpr.net/abstract\\_file/17171](https://www.wjpr.net/abstract_file/17171)) [ DOI :10.20959/wjpr20218-20983 ]

**VALIDATION OF EFFICACY OF NIMBAPATRA GEL & L-P VATI ON HEALING OF EPISIOTOMY WOUND**

Dr. Rutuja Lonkar\*, Dr. Swati S. Mohite and Dr. Pawar K. P.

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17173](https://www.wjpr.net/abstract_show/17173)) PDF ([https://www.wjpr.net/abstract\\_file/17173](https://www.wjpr.net/abstract_file/17173)) [ DOI :10.20959/wjpr20218-20985 ]

**A REVIEW ARTICLE ON VICHARCHIKA W.S.R TO ECZEMA**

Dr. Anita Bhatt\* and Dr. Mayank Bhatkoti

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17174](https://www.wjpr.net/abstract_show/17174)) PDF ([https://www.wjpr.net/abstract\\_file/17174](https://www.wjpr.net/abstract_file/17174)) [ DOI :10.20959/wjpr20218-20986 ]

**A REVIEW ON STEM CELL THERAPY IN TREATMENT OF DIFFERENT DISEASE**

Shaikh Tarik\*, Sonam Kukloria and Nandu Kayande

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17175](https://www.wjpr.net/abstract_show/17175)) PDF ([https://www.wjpr.net/abstract\\_file/17175](https://www.wjpr.net/abstract_file/17175)) [ DOI :10.20959/wjpr20218-20987 ]

**PHARMACOLOGICAL ACTIVITIES OF OCIMUM SANCTUM (TULSI): A REVIEW**

Parvati D. Shere\*, Apeksha B. Korde, Maya M. Sonwane, Gitanjali Chavan and Naresh Jaiswal

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17176](https://www.wjpr.net/abstract_show/17176)) PDF ([https://www.wjpr.net/abstract\\_file/17176](https://www.wjpr.net/abstract_file/17176)) [ DOI :10.20959/wjpr20218-20988 ]

**IMMUNITY BOOSTER HERBS AGAINST CORONAVIRUS**

Deepak Pokharkar\*, Minal Choudhary, Purvaja Choudhari, Vaishnavi Bachate and Lalita Chaudhari

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17177](https://www.wjpr.net/abstract_show/17177)) PDF ([https://www.wjpr.net/abstract\\_file/17177](https://www.wjpr.net/abstract_file/17177)) [ DOI :10.20959/wjpr20218-20989 ]

**A REVIEW ON COVID-19 PANDEMIC OUTBREAK**

Ittedi Rajashekhar\*, Ittedi Rani, Varun Dasari, Nagalatha D. and Veena Gadicherla

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17178](https://www.wjpr.net/abstract_show/17178)) PDF ([https://www.wjpr.net/abstract\\_file/17178](https://www.wjpr.net/abstract_file/17178)) [ DOI :10.20959/wjpr20218-20993 ]

**REVIEW ON EKAKUSTHA (PSORIASIS) AND ITS MANAGEMENT**

\*Dr. Prabhu Nath Das and Dr. Suresh Kumar Jaiswara

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17179](https://www.wjpr.net/abstract_show/17179)) PDF ([https://www.wjpr.net/abstract\\_file/17179](https://www.wjpr.net/abstract_file/17179)) [ DOI :10.20959/wjpr20218-20994 ]

**SPICES- AN ALTERNATIVE THERAPY FOR CANCER TREATMENT**

Ruchita Bhagwat\* and Renuka Bhagwat

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17180](https://www.wjpr.net/abstract_show/17180)) PDF ([https://www.wjpr.net/abstract\\_file/17180](https://www.wjpr.net/abstract_file/17180)) [ DOI :10.20959/wjpr20218-20996 ]

**A REVIEW STUDY ON EVALUATION OF DENTAL PRODUCTS**

M. Bala Krishna, \*M. Yamini Venkata Naga Sai Priya and K. Padmalatha

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17181](https://www.wjpr.net/abstract_show/17181)) PDF ([https://www.wjpr.net/abstract\\_file/17181](https://www.wjpr.net/abstract_file/17181)) [ DOI :10.20959/wjpr20218-20999 ]



**IMUNITY: AYURVEDIC PERSPECTIVE AND PRACTICES-A REVIEW**

r. Vaishali Shamrao Meshram, Dr. Sachin Keshavrao Borkar, Dr. Priyanka Bansod and Dr. rmala Sawarkar

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17183](https://www.wjpr.net/abstract_show/17183))PDF ([https://www.wjpr.net/abstract\\_file/17183](https://www.wjpr.net/abstract_file/17183)) [

DOI :10.20959/wjpr20218-21003 ]

**ELICOBACTER PYLORI INFECTION: A REVIEW**

imayya A. R., Lakshmi Krishna, Prashob G. R. and Soumya R. V.\*

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17184](https://www.wjpr.net/abstract_show/17184))PDF ([https://www.wjpr.net/abstract\\_file/17184](https://www.wjpr.net/abstract_file/17184)) [

DOI :10.20959/wjpr20218-21006 ]

**ONCEPTUAL STUDY OF PARISHEKA: LOCAL TREATMENT METHODOLOGIES IN IALAKYATANTRA**

r. Mohini M. Gaikwad, Dr. Virkar Chandana, Dr. Darunde Sandeep and Dr. Khole Shradhha

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17187](https://www.wjpr.net/abstract_show/17187))PDF ([https://www.wjpr.net/abstract\\_file/17187](https://www.wjpr.net/abstract_file/17187)) [

DOI :10.20959/wjpr20218-21048 ]

**N OVERVIEW ON VIDANG (E. ribes): RELOCATING TO THE FIELD THROUGH ULTIVATION TECHNIQUES**

: Devraj Singh\*, Dr. Rekha Parmar and Dr. Satej Banne

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17189](https://www.wjpr.net/abstract_show/17189))PDF ([https://www.wjpr.net/abstract\\_file/17189](https://www.wjpr.net/abstract_file/17189)) [

DOI :10.20959/wjpr20218-21053 ]

**LITERARY STUDY ON MADHUMEHA (DIABETES MELLITUS) ACCORDING TO YURVEDIC CLASSICS - A BRIEF REVIEW**

gurav Gairola\*, Sunil Nikhate and Sujit Kumar

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17191](https://www.wjpr.net/abstract_show/17191))PDF ([https://www.wjpr.net/abstract\\_file/17191](https://www.wjpr.net/abstract_file/17191)) [

DOI :10.20959/wjpr20218-21063 ]

**BIRD EYE VIEW ON MEDA & JAGHANA VIVECHAN IN AYURVEDA CLASSIC**

: Gaurav Rana and Dr. Datta Bandapalle\*

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17192](https://www.wjpr.net/abstract_show/17192))PDF ([https://www.wjpr.net/abstract\\_file/17192](https://www.wjpr.net/abstract_file/17192)) [

DOI :10.20959/wjpr20218-21077 ]

**LITERARY REVIEW OF PITTAJA YONIVYAPAD (VAGINITIS)**

r. Guddi Digambar Barate and Dr. Amit D. Shinde

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17193](https://www.wjpr.net/abstract_show/17193))PDF ([https://www.wjpr.net/abstract\\_file/17193](https://www.wjpr.net/abstract_file/17193)) [

DOI :10.20959/wjpr20218-21049 ]

**ASTHYA PANCHKARMA – A CRITICAL REVIEW**

iikha Desai\*, Nirmala Sonawane, Maitree Patel and Devyani Sanghani

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17194](https://www.wjpr.net/abstract_show/17194))PDF ([https://www.wjpr.net/abstract\\_file/17194](https://www.wjpr.net/abstract_file/17194)) [

DOI :10.20959/wjpr20218-21120 ]

**NDUGHNA DRUGS OF BHAVPRAKASH NIGHANTU: A LITERARY REVIEW**

usboo Kumari Gupta\* and Rekha Parmar

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17195](https://www.wjpr.net/abstract_show/17195))PDF ([https://www.wjpr.net/abstract\\_file/17195](https://www.wjpr.net/abstract_file/17195)) [

DOI :10.20959/wjpr20218-21119 ]

**RITICAL VIEW ON HRIDAYA AS SITE FOR PRANAHA & RASAVAHA STROTAS**

: Ram Prakash Singh\* and Dr. Akashdeep A. Meshram

ABSTRACT ([https://www.wjpr.net/abstract\\_show/17198](https://www.wjpr.net/abstract_show/17198))PDF ([https://www.wjpr.net/abstract\\_file/17198](https://www.wjpr.net/abstract_file/17198)) [

DOI :10.20959/wjpr20218-21169 ]

**YURVEDIC REVIEW ON ROGI PARIKSHA SIDDHANT IN SHORT**

hesh Gajanan Warghade\*, Sandip Patil, Abhay Khot and Gauri Mulik

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iilpa Gawande Kolarkar\* and Tushar Khairnar

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: Shweta Chauhan\* and Dr. Muneesh Sharma

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