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on Pharmaceutics & Pharmaceutical Sciences

GLYCINE MAX DETAM II VARIETY AS PREVENTIVE AND CURATIVE ORGAN DAMAGE DUE TO EXPOSURE TO LEAD (Pb)

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INTRODUCTION

Human life can not be separated from the objects that come from the metal. Metals are toxic to humans, which can be derived from consuming food, beverage or air inhalation, contaminated dust, skin contact, eye contact and parenteral. Metal that goes into the lungs through the respiratory events will be absorbed by the blood and binds to the lungs and then distributed to all tissues and organs6. The entry of the metal into the body of one of them can lead to the formation of a compound called free radicals. Free radical formed cause DNA base modification, increase lipid peroxidation and alter calcium homeostasis and sulfidril. Antioxidants provide protection against free radical-mediated attack by the metal3;5. Flavonoids are antioxidants that are important for a high redox potential, which allows the flavonoids act as reducing agents, hydrogen donors, singlet oxygen and eliminate7. Isoflavone and anthocyanine are flavonoids that are widely available components in soy and dairy products1. Consumption of soy and dairy product has been linked to reduced of various cancers and chronic inflammatory diseases. Health promotion activities associated with soy consumption was associated with the presence of isoflavone content. Soy is rich in phytochemical compounds that are essential to human life and therefore considered to neutracetical functional food. In this study, the activity of soy isoflavones compared with the activity of vitamin C as an antioxidant. Vitamin C acts as a reducing agent for a variety of free radicals.

METHODS

Glycine max Detam II Variety extracted by kinetic maceration (Stirring Motor IKA Rw 20 N) with stirring speed 10rpm.

Research carried out by using 25 mice strain BALB/C that were randomly divided into five groups of five mice including negative control, positive control treatment, reference and placebo. All groups except positive control were intoxicated with lead in a dose of 25 mg/kg body weight for the duration of seven days. 2.31 g/kg body weight of Glycine max detam II has been given to treatment and positive control4. Thereafter 64 mg/kg body weight of vitamin C has been given to the reference group.

Measurement of lead concentration in mice blood and methanol extract Glycine max Detam II Variety used Atomic Absorption Spectrophotometry (AAS), for measurement of malondialdehyde was used Thiobarbituric acid Reactive Substance (TBARS) assay.

Preparation of histology assay liver and renal mice by making incision (5mm), stained with haematoxylin-eosin (HE) and observed under the electron microscope2;8.

RESULT

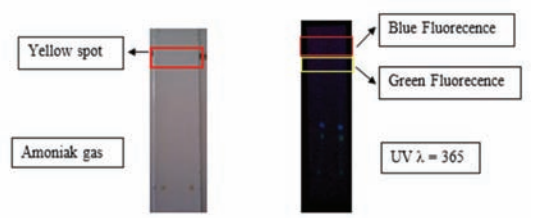

Figure 1. Identification results of Flavonoids in Extract Glycine max seed Varieties Detam II

No	Sample	Pb levels	unit
1.	Glycine max seed Varieties Detam II	0,04	ppm
2.	Glycine max extract Varieties Detam II	0,02	ppm

Table 1. Analysis lead levels in extract and Glycine max seed Varieties Detam II

Mice	Pb levels in the mice blood (ppm)				
	Placebo group	(-) Control group	(+) Control group	Tested group	Comparer group
1.	0,272	0,404	0,217	0,248	0,324
2.	0,288	0,38	0,324	0,314	0,382
3.	0,302	0,393	0,168	0,274	0,188
4.	0,318	0,294	0,192	0,262	0,278
5.	0,348	0,288	0,247	0,256	0,182
average	0,306	0,352	0,230	0,271	0,271
SD	0,029	0,056	0,060	0,026	0,087

Table 2. Analysis of Pb levels in mice blood

Mice	The percentage of kidney cell damage in mice (%)				
	Placebo group	(-) Control group	(+) Control group	Tested group	Comparer group
1	8,45	56,16	11,27	27,94	16,22
2	8,96	60,81	8,97	29,17	12,86
3	8,57	50,00	11,59	32,05	12,50
4	8,06	49,28	13,92	32,53	-
5	6,06	64,29	12,82	32,47	-
average	8,02	56,11	11,71	30,83	13,86
SD	1,14	6,58	1,86	2,13	2,05

Table 3. The percentage of kidney cell damage in mice

Mice	The percentage of liver cell damage in mice (%)				
	Placebo group	(-) Control group	(+) Control group	Tested group	Comparer group
1	6,25	51,43	11,27	27,94	9,86
2	3,9	46,91	8,97	29,17	13,16
3	6,41	42,11	11,59	32,05	9,72
4	3,7	44,05	13,92	32,53	-
5	5,19	51,47	12,82	32,47	-
average	5.09	47.19	11.72	30.83	10.91
SD	1.27	4.24	1.86	2.13	1.95

Table 4. The percentage of liver cell damage in mice

Mice	MDA levels (ppm)				
	Placebo group	(-) Control group	(+) Control group	Tested group	Comparer group
1.	28.418	58.305	23.785	53.543	18.980
2.	27.272	52.013	42.575	50.483	36.283
3.	23.699	28.418	18.98	15.834	33.137
4.	18.980	41.002	53.543	32.126	29.991
5.	23.785	33.924	34.71	58.132	25.272
average	24.431	42.732	34.719	42.024	28.733
SD	3.690	12.39	13.99	17.66	6.80

Table 5. MDA levels (ppm) of liver mice were given extract Glycine max Detam II Varieties

CONCLUSION

The result showed that Glycine max detam II varieties was significantly decrease the level of lead in mice's blood, not significantly decrease the level of malondialdehyde in mice's organ and also significantly decrease of damage organ.

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PREFACE From Chairman

It is our pleasure to present you the proceedings of The 1st International Conference on Pharmaceutics and Pharmaceutical Sciences (ICPPS) organized by The Faculty of Pharmacy Universitas Airlangga Surabaya Indonesia.

The proceeding was produced based on papers and posters presented at The 1st International Conference on Pharmaceutics and Pharmaceutical Sciences (ICPPS), held in Surabaya, Indonesia, 14-15 November 2014.

The proceeding clearly reflects broad interest, from the participants that coming from all around the world.

The papers presented were pharmaceutics and biopharmaceutics; requirements on how to evaluate molecules in discovery and their appropriateness for selection as potential candidate; their development in context of challenges and benefits, together with associated time and cost implications and also requirements to progress through pre-clinical and clinical.

In this an opportunity, I would like to express my appreciation to the editorial team of the proceeding who have been working hard to review manuscripts, and making the first edition of this proceeding be possible.

I would like also to thanks to all invited speakers and presenters who participated in The 1st International Conference on Pharmaceutics and Pharmaceutical Sciences (ICPPS) and your contribution to this proceeding.

Finally, I hope this proceeding will give contribution to the Pharmaceutics and Pharmaceutical Sciences research.

Chairman,

Dra. Esti Hendradi, MSI., Ph.D., Apt

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