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Efficacy Galangin on Protein oxidation biomarker SH-group

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ABSTRACT

Galangin a type of flavonoid found in high concentrations in *Alpinia officinarum* and *Helichrysum aureonitens*. Galangin has been shown to have in vitro antibacterial and antiviral activity also an antioxidant. Plasma oxidation of SH - group known as thiol stress. One of the markers of protein oxidation, SH-group is sensitive to oxidative stress and increasing oxidative stress is symbolic. In the current study, we investigated the effect of some flavonoid Galangin on serum SH-group in rats by gavage feeding of flavonoids in dose 7.5 and 15 mg/kg w.b. Group A received only water and ethanol and group B received Galangin and ethanol. The flavonoid Galangin reduced serum in SH-group. The SH-group was measured using the Kitajima's method. We observed a significant ($P=0.01$) increased level SH-group of dosages of 7.5 mg/kg w.b in compared with the control (Ethanol) group. Dosages 15 mg/kg w.b was a significant ($P=0.00$) compared with the control (Ethanol) group. The Galangin can effect on oxidation of SH- group. Galangin can take to prevent damage SH- group.

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1. INTRODUCTION

Galangin a type of flavonoid. It is found in high concentrations in *Alpinia officinarum* and *Helichrysum aureonitens*.(1,2) Galangin has shown to have in vitro antibacterial and antiviral activity (3-5). In a study of caffeic acid in propolis production, CD4, IL2, IL4 and interferon-gamma in mice boosted. Caffeic acid also helps prevent breast cancer progression, metastasis to the lungs of rat. Also inhibits the growth of breast tumor cells in vitro (6,7). Flavonoids are found widely in fruits and vegetables. The biggest source of flavonoids in the diet is fruit juice. Flavonoids with antioxidant activity against various species of nitrogen and oxygen active such as radicals 1, 1 diphenyl Pykaryl Hydrazyl (DPPH), superoxide radicals, hydroxyl radicals and hypochlorous acid has been evaluated proxy (8). Antioxidant activity of flavonoids considerably according to the type of structure and the functional group in the chemical structure swings (9). Protective effects of flavonoids in biological systems and their capacity to transport of free electrons, activate antioxidant enzymes, radical reduction of alpha - tocopherol and of oxidase inhibition has been described (10). Galangin antioxidant

properties also help to prevent damage from free radicals and stress oxidative. Plasma oxidation of SH - group known as thiol stress, which is an indicator of protein oxidation. Sulfhydryl radicals formed in chemical compounds that are energetic connections. This fitting is a fitting energized by phosphates compounds such as Adenosine Triphosphate (ATP). SH-group ratios are sensitive to oxidative damage and mitigation of oxidative stress is an important sign. One can say that the sulfhydryl groups of proteins can be considered as reflecting the right of free radicals (11). SH-group reducing antioxidants and can cause tissue damage.

2. MATERIALS AND METHODS

30 male Wistar rats weighing 150 ± 20 g, which, were, housed five per cage. They were fed a rat chow diet and water ad libitum. They were kept in a temperature-controlled and 12 h light/dark for one week. Every rat's blood was collected through its heart within dry tubes. The blood was centrifuged at 3000 rpm and serum was isolated. Then, SH-group was evaluated by the method described by Kitajima's (12). 30 rats were assigned randomly to two

groups, 10 rats group A, 10 rats group B and 10 rats to group C. Experiments were performed for six weeks. The groups of animals received treatment and gavage feeding was done once a day:

- A) 1ml ethanol, 25%-water solution for 10 rats.
- B) 7.5mg Galangin/kg, w.b + 1 ml ethanol for 10 rats.
- C) 15 mg Galangin/kg w.b + 1 ml ethanol for the other 10 rats.

At the end of the experimental period, blood was collected from heart under anesthesia by ketamine and xylazine. This represents a revival of Thiol groups, which can cause a yellow complex 5, 5'-dithiobis 2-nitrobenzoic acid (DTNB) is measurable wavelength of 421 nm. plasma 100 µm, 2800 µm PH=8 PBS, and 300 µm 5, 5'-dithiobis 2-

nitrobenzoic acid (DTNB) mixed, and incubated for 15 min at room temperature, OD is measured at 412 nm. Measured with a spectrophotometer Model EPOCH-Bio Tek. Results are expressed as mean ± SD. Statistical significance was achieved if P.Values were less than 0.05. All statistical analysis was performed using the SPSS (version 18) LSD – ANOVA.

$$SH\text{-group} = OD/13600 * 10^6$$

3. RESULTS AND DISCUSSION

We observed a significant (P=0.01) increased level SH-group of dosages of 7.5 mg/kg w.b in compared with the control (Ethanol) group (

Table 1) and (Figure 1).

Table 1. comparison of mean of SH-group in Ethanol, dosages of 7.5 and 15mg/kg w.b

| groups | N | Mean | Std. Deviation | P.Val |
|---------------------|----|--------|----------------|----------|
| Ethanol | 10 | 97.21 | 8.73 | |
| Dosages of 7.5mg/kg | 10 | 111.21 | 12.13 | P=0.01** |
| dosages of 15mg/kg | 10 | 134.78 | 8.22 | P=0.00** |

**The mean difference is significant at the 0.05 level.

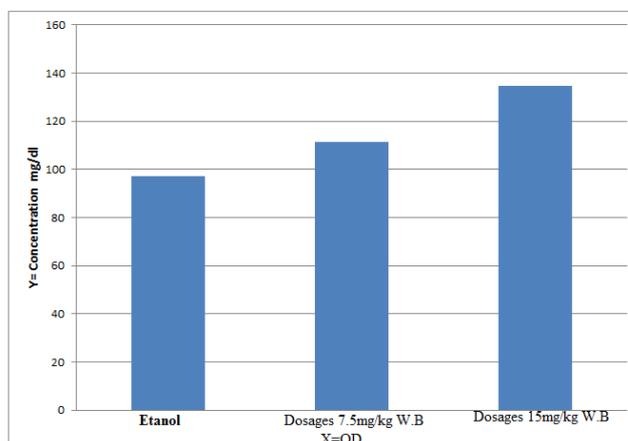


Figure 1. Ethanol and dosages 7.5 and 15 mg/kg w.b

dosages 15 mg/kg w.b was a significant (p=0.00) compared with the control (Ethanol) group (Tab: 1) (Fig: 1). these findings imply that Galangin potentiates antioxidant capacity (13). These results suggest that Galangin prevents oxidative damage and has a down regulatory effect on the inflammatory pathway in liver of rats (14). Galangin actually reduces the effects of oxidative damage and reduces free radicals and SH-group is a radical group. Flavonoids are plant polyphenols, which display antioxidant activity as well as beneficial pharmacological and biochemical actions, thus could be used as natural antioxidant. The use of antioxidant compounds can slow down the process of oxidation.

4. CONCLUSION

Flavonoid can act as antioxidants. Antioxidants are able to prevent free radical damage. Flavonoid thus can be used in food.

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AUTHORS CONTRIBUTION

This work was carried out in collaboration between all authors.

CONFLICT OF INTEREST

The authors declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

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