Trienty B G Purba et al., Biol Med 2018, Volume 10
DOI: 10.4172/0974-8369-C1-005

Intra-gastric administration of mangostin microparticles encapsulated by chitosan-alginate: Acute toxicity and organs histopathological changes

Trienty B G Purba, Siti Farida, Amirah D Diba, Elsa A Krisanty and Erni H Purwaningsih
University of Indonesia, Indonesia

Statement of the Problem: Colorectal cancer is one of cancers with high incidence and its available treatments have many side effects. Therefore, it is necessary to discover a new suitable treatment with minimal systemic side effects. In recent studies, mangostin, contained in *Garcinia mangostana* L, has been found as a potential anticancer agent for several cancer cells. Using chitosan-alginate to encapsulate mangostin aims to achieve a good colon-targeting delivery system. This formulation is predicted as a new form of colorectal cancer targeted treatment and needs to be evaluated for its acute toxicity and effects on organs involved in digestion and excretion.

Methodology & Theoretical Orientation: Six to eight weeks old BALB/c white mice were divided into 3 groups: Normal, doses of 2 and 5 g/kg body weight. The intra-gastric dose administration was given once for acute toxicity study where the mice were observed for 14 days. At last, the histopathological changes of the organs (liver, kidney, stomach and small intestine) of the sacrificed mice were also examined.

Findings: All mice were survived and no acute toxicity signs were found. Significant difference on the histopathological changes was found only in the small intestine (p=0.004). Based on that, the significant difference was found between normal and dose of 2 g/kg body weight (p=0.011) and normal and dose of 5 g/kg body weight (p=0.005). Nevertheless, there is no significant difference between dose of 2 and 5 g/kg body weight (p=0.371).

Conclusion & Significance: This study shows that doses of 2 and 5 g/kg bodyweight mangostin microparticles encapsulated by chitosan-alginate intra-gastric administration do not produce acute toxicity signs. Furthermore, the histopathological changes were found only in the small intestine.

Biography

Trienty B G Purba is pursuing her undergraduation in Faculty of Medicine, University of Indonesia. She has extended her valuable service towards the scientific community with her extensive research work.

trienty.purba@gmail.com

Notes: