

In vitro Toxicity and in vivo Immunomodulatory Effects of Flavokawain A and Flavokawain B in Balb/C Mice.

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ABSTRACT

Flavokawains are chalcones that can be found in the root extracts of the kava-kava (*Piper methysticum*) plant. Flavokawain A and flavokawain B are known to possess potential anti-inflammation and anti-cancer activities. Nevertheless, the effects of both these compounds on the normal function of the host have not been studied. There is a need to find agents that can enhance the functionality of the immune system without disturbing the homeostatic balance. This study aimed to determine the toxicity and immunomodulatory effects of flavokawain A and flavokawain B on Balb/c mice. Several assays were conducted, the MTT viability assay, cytokine detection (IL-2 and TNF- α), immunophenotyping of important immune markers, serum biochemical analysis and detection of nitric oxide levels. Based on our results, flavokawain A and B did not cause mortality and all mice were observed normal after the treatment period. Both flavokawains stimulated splenocyte proliferation, thesecretion of IL-2 and TNF- α and raised the population of T cell subsets without significantly altering the level of several serum biochemical parameters. Overall, flavokawain A and B could serve as potential immune-modulator drugs without causing any toxicity, however further in vivo evidence is needed.