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In Vitro Evaluation of Anti-inflammatory and Anti-Cancer Activities of Flower Extracts of *Abelmoschus esculentus* L.

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Abstract: *Oxidative stress and inflammation are the predominant cause of chronic diseases, including multiple forms of cancers. Prevention of oxidative stress and inflammation is considered to be a target for preventing these disorders due to their significant roles in various degenerative diseases. Various natural products and plant extracts prevent the process of free radical- induced damages. The present study evaluated the biological properties of Abelmoschus esculentus L, which is a traditionally used Ayurvedic plant. Protein denaturation inhibition bioassay and Proteinase Inhibition assays were used for anti-inflammatory studies. Anticancer activity was evaluated using Brine shrimp lethality bioassay. The results of the present study anti-inflammatory properties were also evident in terms of Protein denaturation inhibition bioassay the Hydroalcoholic extract's IC_{50} value is 166.56 µg/ml, ethanolic extract's is 220.80 µg/ml, aqueous extract IC_{50} value is 234.01and Proteinase Inhibition assay the IC_{50} values for Hydroalcoholic, ethanolic and aqueous extracts were 131.54, 150.99 and 221.84 µg/mL, respectively. The benefit of a lethal dose (LD_{50}) is that it can be used to reduce significantly the number of animals used.(37) In Abelmoschus esculentus L the hydroalcoholic extract showed the lowest LC_{50} value (152.90 µg/ml) and in ethanol showed lowest LC_{50} Value (241.58µg/ml). According to the definition of LC_{50}, the high LC_{50} value means it has less toxicity and low LC_{50} value means it has more toxicity that means, hydroalcoholic extract from Abelmoschus esculentus L contained more toxic compounds (low LC_{50} value means high toxic). The study thus concludes that Abelmoschus esculentus L showed significant anti-inflammatory and anticancer properties. Further studies together with a bioassay-guided fractionation may identify possible bioactive compounds.*

Keywords: flavonoids; anti-inflammatory; anticancer; Abelmoschus esculentus L ; in vitro studies

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