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The Evaluation of In-vitro Anti-inflammatory Effect of a Given Methanolic Extract of *A. flavus* MM1

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The primary drawbacks of currently available NSAIDs are their toxicity and the recurrence of symptoms once the medication is discontinued. As a result, many individuals seek safer alternatives, such as natural sources. The main objective of this study was to evaluate the in-vitro anti-inflammatory activity of 5 different concentrations of *Aspergillus flavus* (*A. flavus*) MM1 methanolic extracts. The *A. flavus* extracts were subjected to an in-vitro anti-inflammatory activity study using two different methods: an egg albumin denaturation assay and the Human Red Blood Cell (HRBC) membrane stabilization method, which involves heat-induced haemolysis. The methanolic extracts of *A. flavus* MM1 exhibited promising concentration-dependent in-vitro anti-inflammatory activity when calculated using the equation. The anti-inflammatory activity was assessed in comparison to that of the standard drug, Diclofenac Sodium (DS). Higher concentrations were observed to have a more potent anti-inflammatory effect, with the methanolic extracts (156.25-1250 µg/mL) showing inhibition of protein denaturation between 27.6% and 67%. The protein denaturation method demonstrated that the methanolic extract of *A. flavus* (1250 µg/mL) and DS (1000 µg/mL) inhibited egg albumin denaturation by 67% and 63.4%, respectively. The results indicated that the methanolic extracts (312.5-2500 µg/mL)) exhibited a percentage inhibition of haemolysis that fell between 15% and 75.9%. According to the heat-induced haemolysis method, the methanolic extracts of *A. flavus* (2500 µg/mL) and the positive control DS (1000 µg/mL) showed 75.9% and 75.6% inhibition of RBC haemolysis, respectively. The t-test and the above findings revealed the methanolic extracts of the Aspergillus fungus *A. flavus* MM1 exhibited notable anti-inflammatory characteristics ($p < 0.05$).

Keywords: *A. flavus MM1 extract, anti-inflammatory, protein denaturation, heat-induced haemolysis, hrbc membrane stabilization*