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BIOACTIVITY OF SOLVENT EXTRACTS OF *PIPER NIGRUM* SEEDS

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The spices' history is the history of humankind itself. Spices have been valued for their flavouring and medicinal properties for thousands of years. Among the many spices available, *Piper nigrum*, commonly known as Black Pepper, is used as a food ingredient mainly due to its specific pungent taste of Piperine, which is the main compound of Black Pepper. This study was carried out to determine the bioactivities of different extracts of seeds of *P. nigrum*. Black Pepper seeds were purchased from the local market, air dried and ground to obtain a homogenous powder using a home-use grinder. The powdered sample was sequentially extracted into Dichloromethane (CH_2Cl_2) and Methanol (MeOH) by sonicating for 30 minutes. This procedure was repeated twice, and the filtrate was combined and evaporated to dryness using a rotary evaporator. Subsequently, the crude extracts were subjected to DPPH radical scavenging activity, Brine Shrimp lethality bioassay using *Artemia salina*, phytotoxicity against germination of lettuce seeds (*Lactuca sativa)*, and enzyme inhibitory assays against α-amylase and lipase enzymes for 1000 mg L^{-1} to 31.25 mg L^{-1} concentrations for each extract. The results showed that the CH_2Cl_2 extract exhibited the highest DPPH radical scavenging activity with an IC_{50} value of 178.33 mg L^{-1} followed by the MeOH extract with IC_{50} 221.25 mg L^{-1}. The CH_2Cl_2 extract exhibited IC_{50} values of root and shoot inhibition in phytotoxicity assay with 1313.7 mg L^{-1} and 796.51 mg $L^{-1,}$ respectively. The MeOH extract exhibited IC_{50} values for root and shoot inhibition at 914.79 mg L^{-1} and 1524.26 mg $L^{-1,}$ respectively. Both extracts demonstrated 100% cytotoxicity up to 31.25 mg L^{-1}. Therefore, an assay was conducted for lower concentrations up to 3.125 mg L^{-1}. CH_2Cl_2 extract showed 100% inhibition at 3.125 mg $L^{-1,}$ while MeOH extract showed cytotoxicity with IC_{50}=133.01 mg L^{-1}. None of the extracts showed enzyme inhibitory activity against α -amylase and lipase enzymes. This study suggests the potential bioactivity of *P. nigrum* seeds for medicinal and agricultural purposes.

Keywords: Antioxidant activity, Cytotoxicity, Enzyme inhibitory activity, Phytotoxicity