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BIOACTIVITY OF METABOLITES FROM *Piper longum*

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Plant-derived extracts and compounds have been widely used to treat many diseases. *Piper longum* L. (Piperaceae), commonly known as long pepper, is widely distributed in the tropical and subtropical regions of the world. Dried fruits of *P. longum* are slender and aromatic. They are commonly used to treat stomach aches, bronchitis, cough and tumours. They are also applied externally to soothe and relieve muscular pains, rheumatism, paralysis and inflamed skin. Fruits of *P. longum* (400 g) were air-dried, powdered using an electric grinder and extracted successively with ethyl acetate (EtOAc) and methanol (MeOH) using a sonicator. Removal of the solvent afforded 12 g of EtOAc and 21 g of MeOH extracts. It was subjected to silica gel, Sephadex LH-20 and reversed-phase silica gel columns and resulted in three UV active compounds guineesine (1), pipatalin (2) and 4',7-dimethylapigenin (3). All the compounds were subjected to enzyme inhibitory assays α-amylase, α-glucosidase, acetylcholinesterase and lipase. They were also screened for antioxidant activity using DPPH radical scavenging method, antifungal activity against *Cladosporium cladosporioides*, phytotoxicity by lettuce seed germination assay and brine shrimp toxicity against *Artemia salina*. All compounds showed moderate brine shrimp lethality with IC_{50} of 66.71 ppm, 30.53 ppm and 35.63 ppm, respectively. Strong antioxidant activity was observed for compound 1 against DPPH radical with IC_{50} 0.03 ppm. Compound 2 showed both root and shoot inhibition of lettuce seedlings at 243.58 ppm and 169.43 ppm, respectively. Moderate α-glucosidase and weak α-amylase inhibitory activities were observed for compound 3 at 58.12 ppm and 667.28 ppm, respectively. None of the above compounds exhibited acetylcholinesterase, α-amylase and lipase enzyme inhibitory activities and antifungal activity. These findings suggest *P. longum* fruits could be a potential source for new therapeutic agents.

Keywords: Antioxidant, Enzyme inhibitors, *Piper longum*