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Careya arborea STEM BARK: SOURCE OF POTENTIAL THERAPEUTIC AGENTS

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Natural products originating from plants and microorganisms have been widely used to treat many diseases. Many records have shown the use of such substances by humans for thousands of years. *Careya arborea,* commonly known as wild guava, is a medium-sized deciduous tree that belongs to the Family Lecythidaceae. The stem bark is used in the treatment of tumours, bronchitis, epileptic fits and skin diseases. It is also used as a remedy for diarrhoea dysentery with bloody stools and ear pain. *Careya arborea* stem bark was air-dried and powdered using a grinder. The powdered sample was sequentially extracted with ethyl acetate (EtOAc) and methanol (MeOH) using a sonicator. Removal of the solvents afforded EtOAc and MeOH extracts. The two extracts were subjected to silica gel, Sephadex LH-20 and reversed-phase silica gel columns to yield five compounds Lupeol caffeate (1), Epigallocatechin-3-gallate (2), Gallocatechin (3), Epigallocatechin (4) and Lupeol (5). All the compounds were subjected to enzyme inhibitory assays; α-amylase, α-glucosidase, acetylcholinesterase and lipase. Compounds were screened for antioxidant activity using DPPH radical scavenging method, antifungal activity against *Cladosporium cladosporioides*, phytotoxicity by lettuce seed germination assay and toxicity against brine shrimp*, Artemia salina*. Compound 2 showed moderate brine shrimp lethality (LD_{50} 71.29 ppm). Strong antioxidant activity against DPPH radical was observed for all five compounds, and strong α-glucosidase inhibitory activity was observed for compounds 2, 3 and 4 (IC_{50} 0.89, 3.80 and 0.25 ppm, respectively). Moderate acetylcholinesterase inhibitory activity was exhibited by compound 2 (IC_{50} 85.92 ppm) and compound 5 (IC_{50} 90.33 ppm), while compound 3 showed strong acetylcholinesterase inhibitory activity (IC_{50} 9.51 ppm). Out of all, compound 3 exhibited mild α-amylase inhibitory activity (IC_{50} 111.81 ppm), and compound 2 showed lipase inhibitory activity (IC_{50} 179.85 ppm). These results suggest that *C. arborea* could be a potential source for the isolation of new therapeutic agents.

Keywords: Antioxidants, *Artemia salina, Careya arborea*, Enzyme inhibitors