CHEMISTRY AND BIOACTIVITY STUDIES OF HORSE GRAM

(MACROTYLOMA UNIFLORUM)

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ABSTRACT

Horse gram is an underutilized pulse crop grown in wide range of adverse climatic conditions. It occupies an important place in human nutrition and has rich source of protein, minerals, and vitamins. The importance of horse gram was well recognized by the folk/ alternative/ traditional medicine as a potential therapeutic agent to treat kidney stones, urinary diseases, piles, common cold, throat infection, fever etc. The presence of nonnutritive bioactive compounds has shown a significant effect on physiological and metabolic implications in human health. It possesses potent properties to scavenge free radicals.

In this article, research progress is presented on the Antioxidant properties, α-amylase inhibition activity, α-glucosidase inhibition activity, lipase inhibition activity, and total polyphenolic content of raw and roasted brown horse gram and raw and roasted black horse gram. Antioxidant activity was determined by DPPH radical scavenging activity using Ascorbic acid as standard, and various concentrations of the extract solutions were measured at 518nm. α-amylase inhibition activity was determined using Acarbose as standard, and various concentrations of the extract solutions were measured at 540 nm. α-glucosidase inhibition activity was determined using Acarbose as standard, and various concentrations of the extract solutions were measured at 415nm. Lipase inhibition activity was determined using Orlistat as standard, and various concentrations of the extract solutions were measured at 405 nm. TPC was determined by Folin–Ciocalteu colorimetric method using Gallic acid as standard, and various concentrations of the extract solutions were measured at 765 nm. Natural antioxidants present in several medicinal plants are responsible for inhibiting the harmful effects of oxidative stress. Plants contain polyphenols that act as free radical scavengers and reduce oxidative stress and may be an alternative remedy to cure various harmful human diseases. Also this study aims to calculate IC_{50} value of extracts and standards.