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# Exploring the Therapeutic Potency of Buchanania lanzan Spreng: A Study on Phytochemicals Quantification, Assessment of Antioxidant Alpha-Amylase Inhibitory Properties

Buchanania lanzan Spreng Locally known as “Achar,” “Charoli,” and “Chawar,” is a socioeconomically significant plant that has been recognized for its therapeutic usefulness by the IUCN Red Data Book. Tribal communities have long used it for a variety of therapeutic uses. Reactive oxygen species (ROS) are essential, but if their equilibrium is disrupted, they can damage cells. Plants high in antioxidants, such as Buchanania lanzan Spreng, may be able to combat these circumstances by limiting the buildup of ROS. To fully grasp their therapeutic potential against illnesses connected to oxidative stress, it is essential to learn about their phytochemical composition. The total methanolic leaves extract (BLTMLE) of Buchanania lanzan was examined in this work, and its pharmacological and phytochemical properties were assessed. Phytochemical screening identified presence of polyphenols, glycosides, saponins, and steroids in plant extract. The total amounts of phenol, flavonoids, saponins, and carbohydrates in BLTMLE were determined by various estimation assay. BLTMLE demonstrated potent free radical scavenging abilities with an IC50 by DPPH assay compared to standard ascorbic acid with lower IC50 value. As a scavenger, BLTMLE significantly inhibited α-amylase and assisted reduce the hemolysis in RBC cells induced by H2O2. Its phytochemical composition and pharmacological potential were also revealed by Thin Layer Chromatography (TLC) and HR-LCMS analysis, opening up new study and application possibilities.

Keywords: Antioxidants, Haemolysis, Alpha inhibitory assay, DPPH, TLC

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