Abstract

*Pithecellobium dulce* (Roxb.) Benth is very important medicinal plant and has various medicinal uses. Bark and leaves are known for astringent, emollient, abortificient, dysentery, anticonvulsant, antiulcer and antidiabetic effect. Very few phytoconstituents are reported from these parts of the plant. Oligomeric and isoprenyl flavanoids are reported in seeds of the plant. So this study was designed to isolate and identify the phytochemical present in wood bark and leaves part of the plant. Phytoconstituents of different chemical nature such as long chain hydrocarbons, triterpenoids, coumarins, and flavonoid were isolated and chemical structure was elucidated. Quantification & validation of bergapten was done and extraction efficiency using different extraction techniques was evaluated. Microwave assisted extraction technique was found to be most efficient. Along with this, plant has shown good antidiabetic potential on α-glycosidase and α-amylase assays. Antioxidant potential, total phenolic and flavonoid content were also estimated. High phenolic content may be contributing to good antioxidant effect of the bark and leaves.

**Keywords:** *Pithecellobium dulce*, Phytoconstituents, Isolation, Characterization, Hydrocarbons, Flavanoids, Triterpenoids, Coumarins, HPLC, Microwave assisted extraction, Quantification, Validation, *In vitro* assays, antidiabetic, antioxidants, and Phenols.