

Abstract

The world is moving towards natural products. The natural products are considered as less toxic than synthetic products as these are derived from natural sources. The synthetic products due their misuse, side effects, high purchase cost, high production cost, toxic production procedure etc. are getting replaced by the natural products. The natural products are less expensive, have low production cost, have environment friendly production process, more effective, have no side effects are being used for the treatment of many diseases. So, more research must be done on natural products.

Many of the plants of family *Fabaceae* are used in the treatment of diseases and show many biological properties like *Gleditsia triacanthos L.* This work aims to provide updated information of phytochemical constituents and biological activities performed by the leaves extract of *Gleditsia triacanthos L.* Studies regarding this selected plant are sourced from Google Scholar, PubMed and Scihub. The terms used for the search include phytochemistry, traditional and pharmacological uses and biological activities performed by the respective plant.

The leaves extract was prepared by quenching the leaves, crushing, percentage composition preparation in ethanol and methanol, sonication, orbital shaking, filtration, percentage composition preparation for tests. Percentage yield was calculated for both the solvents. 100% methanol and 40% ethanol showed the highest yields of 25.942% and 12.698% respectively.

This plant has phytochemicals like polyphenols that have many medicinal importance against minor to major diseases. The polyphenols were extracted and then detected by HPLC profiling of the leaves extract sample. This has many biological activities with respect to the phytoconstituents present in them. This plant has antimicrobial, antioxidant, and antidiabetic actions etc.

The antimicrobial activity was performed by the disc diffusion method. Penicillin was used as a control. Two bacterial strains were used: positive strain used was *Bacillus* ix

Subtillis and negative strain used was *E.Coli*. None of the sample showed activity against *E.Coli*. 100% methanol and 40% ethanol showed activity against *Bacillus Subtillis* with zone of inhibition of 9mm and 8mm respectively.

The antioxidant activity was performed by the antioxidant assays like TFC, TPC, DPPH, ABTS and metal chelating activity determination. In DPPH assay, 80% methanol and 100% ethanol showed highest inhibition of 85.61% and 52.8% respectively. In ABTS assay, 80% methanol and 100% and 40% ethanol showed highest inhibition of 9.483% and 9.398% respectively. In TFC assay, 80% methanol and 100% ethanol showed the highest flavonoid content of 397.09mg/L and 358mg/L respectively. In TPC assay, 100% methanol and 60% ethanol showed the highest phenolic content of 2111.75mg/L and 1189.25mg/L respectively. In metal chelating activity, 100% methanol and 100% ethanol showed the highest percentage bound iron of 21.93% and 18.43% respectively.

The antidiabetic activity was performed by using α -glucosidase inhibition assay. 80% methanol and 100% ethanol showed the highest percentage inhibition of 88.33% and 52.44% respectively.