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A COMPARATIVE STUDY ON ANTIOXIDANT AND ANTI-INFLAMMATORY ACTIVITY OF AQUEOUS AND ACETONE EXTRACTS OF *Plumeria obtusa* AND *Plumeria rubra*

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Abstract

When the balance between production and neutralization of reactive oxygen species in the body is disturbed, it leads to oxidative stress, which cause certain pathological conditions. As a treatment for such conditions, exogenous antioxidants are recommended. The plants have been recognized as sources of natural antioxidants. The current study was carried out to evaluate the antioxidant and anti-inflammatory activity of extracts of *Plumeria rubra* and *Plumeria obtusa*. DPPH scavenging activity, ferric reducing antioxidant power (FRAP), nitric oxide scavenging activity, total flavonoid and phenolic content, and effect of protein denaturation were evaluated, in acetone and aqueous extracts of flower and leaves of two plants. The results of the study revealed that all the extracts acted as antioxidants. The maximum DPPH scavenging activity was observed in the aqueous extract of flowers of *P. rubra* and the acetone extract of the leaves of *P. obtusa*, with the percentage inhibition of 90.81 % and 91.49 % respectively. Dose-dependent nitric oxide scavenging activity and FRAP was seen in all the extracts. The highest nitric oxide scavenging activity was exerted by acetone extract of the leaves of *P. obtusa* with 8.63 mg of gallic acid/g of the extract while the maximum FRAP was exhibited by aqueous extract of the flowers of *P. rubra* with a reducing power of 0.82 mg of ascorbic acid/g of the extract. The extracts also showed considerable inhibition of bovine serum albumin denaturation compared to the standard, acetylsalicylic acid. The highest inhibition was exhibited by the acetone extract of leaves of *P. obtusa* (0.85 mg/g) and P. *rubra* (0.80 mg/g). Many of the tested extracts showed a relatively low amount of total phenolic and total flavonoid content. The extracts of both plant species possess high antioxidant activity which suggests that the parts of these plants can be used as natural resources of antioxidants.

Keywords: *Plumeria rubra*, *Plumeria obtusa*, antioxidant, anti-inflammatory