ABSTRACT

In this study, *Plectranthus rugosus* was subjected to investigate its phytochemicals, *In vitro* antioxidants and *In vivo* anti-inflammatory activities. In phytochemical analysis, it was observed that the methanolic fraction had highest proportion of phytochemicals. Carbohydrates, Proteins, Tannins and Flavonoids were present in all fractions (n-hexane, chloroform, aqueous and methanol) of *Plectranthus*. Three types of antioxidant tests were performed. These antioxidants were Total Phenolic Contents, DPPH radical scavenging activity and Metal Chelating activity. For Total Phenolic Contents highest GAE value was of methanol fraction that was 30.6±0.00057 mg/ml and lowest was observed in n-hexane that was 24.03±0.0003. DPPH scavenging activity resulted that at the concentration of 100µl, aqueous extract of *Plectrenthus* showed highest value at 84.45±0.001 as compared to BHT and lowest was observed in 50µl n-hexane that was 15.47±0.001.

One day trial was conducted to evaluate the anti-inflammatory activity by carrageenan induced paw edema. Extraction of plant was done by maceration and indomethacin was used as standard drug. The results had shown that the percentage protection against edema for standard drug indomethacin and extract of plant for time interval 0 to 3h were 2-60 % and 4-58 percent respectively. Extract of plant showed slightly less anti-inflammatory potential at start than indomethacin. During time interval 2 to 3 h, plant extract showed significant results. These results were almost near to indomethacin. So, being a natural drug, the plant has less side effects than indomethacin. Whole plant possesses good anti-inflammatory activity and it can be used as anti-inflammatory drug in near future.