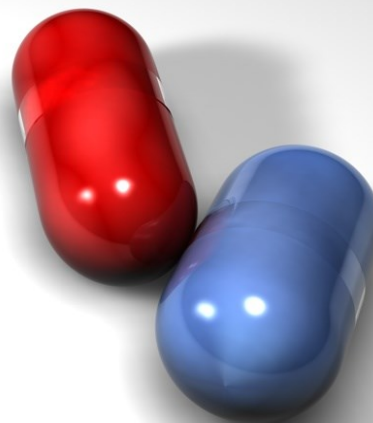


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Letter to the Editor

Anti-inflammatory activity of *Memecylon malabaricum*

Sir,

Recently, herbal medicines have received attention because of their ease of availability, minimum severe adverse effects, and safer treatment of ample illnesses. Inflammation is the protective measure of the immune system against injury, illness and harmful agents/stimuli. Uncontrolled inflammation can be responsible for ample disorders including allergies, cardiovascular dysfunctions, metabolic syndrome, cancer, and auto-immune diseases.

Several medicinal plants namely, *Actinia tenebrosa* (Kumari et al., 2019), *Borago officinalis* (Asaad et al., 2020), *Boswellia serrata* (Siddiqui, 2011), *Cuminum cyminum* (Asaad et al., 2020), *Curcuma longa* (Jurenka, 2009), *Dracaena victoria* (Sundar and Arunachalam, 2020), *Oenothera biennis* (Granica et al., 2013), *Ribes nigrum* (Tabart et al., 2012), *Rosa canina* (Lattanzio et al., 2011), *Rosmarinus officinalis* (Takaki et al., 2008), *Salvia officinalis* (Baricevic et al., 2001), and etc. are previously been recognized for their anti-inflammatory responses. However, the quest to develop alternative substances with promising anti-inflammatory potential is ongoing.

The anti-inflammatory effect of *Memecylon edule* (Nualkaew et al., 2009) and *M. malabaricum* (Rekha et al., 2014) had been described. *M. malabaricum* contains memecylaene which reduced the edema in sub-acute carrageenan-induced paw edema in rats in a dose-dependent manner (Rekha et al., 2014). It inhibited the phospholipases A₂'s V and VIII of Russell viper venom. The present investigation is aimed to screen the methanolic extract of *M. Malabaricum* leaves for anti-inflammatory and antioxidant potential.

The *M. malabaricum* leaves were collected from Pilikula botanical garden, Mangalore, Karnataka, India (12° 55' 48.93" N; 74° 53' 43.75" E). Herbarium sheet of *M. malabaricum* plant was prepared and submitted to the Botanical Survey of India, Pune, for authentication.

Shade dried leaves of *M. malabaricum* were extracted using a continuous hot extraction process (soxhlet extraction) using methanol as a solvent for 6 hours. Further, the extract was concentrated using a rotary evaporator (Heidolph, Germany). The dried extract was

collected and stored at 4°C until further use. The preliminary phytochemical screening tests were performed using the standard protocol to confirm the presence of secondary metabolites (Bargah, 2015).

Antioxidant activity of methanolic extract of *M. malabaricum* leaves was estimated using DPPH (1, 1-diphenyl-2, picryl-hydrazyl) free radicals assay. 100 µL of different concentrations (200, 400, 600, 800, 1000 µg/mL) of *M. malabaricum* leaves extract was taken in the microtiter plate. Methanolic DPPH (0.1%) was added to samples and incubated in dark conditions for 30 min. The observation was done for discoloration and reading carried on an Elisa plate reader at 490 nm. Percent free radical scavenging activity was calculated using the following equation:

$$\% \text{Scavenging activity} = \frac{\text{absorbance of control} - \text{absorbance of test}}{\text{absorbance of control}} \times 100$$

In vitro anti-inflammatory activity was assessed with the standard procedure. Briefly, the reaction mixture (2 mL) consisted of 0.1 mL 5% aqueous bovine serum fraction, 1.8 mL of phosphate-buffered saline (PBS, pH 6.4), and 0.1 mL of *M. malabaricum* leaves extract. A similar volume of double-distilled water served as a control. Then, the mixtures were incubated at (37 ± 2°C) in an incubator for 15 min and then heated at 57°C for 30 min. After cooling, their absorbances were measured at 660 nm using the vehicle as a blank. Aspirin was used as a reference drug and treated similarly to determine absorbance. The percentage inhibition of protein denaturation was calculated with the following formula:

$$\% \text{inhibition} = \frac{\text{absorbance of control} - \text{absorbance of test}}{\text{absorbance of control}} \times 100$$

All preliminary phytochemical screening tests on the methanolic extract were carried out to identify the valuable phytoconstituents using standard methods. The results indicated the presence of flavonoids, tannins, resins, and saponins. Our results correlate with the previous reports (Hullatti and Rai, 2004; Vivek, 2014).

At a higher concentration (500 µg/mL), the antioxidant activity exhibited by *M. malabaricum* leaves extract (53.0 ± 1.1) was relatively closer to the standard ascorbic acid (67.1 ± 0.6%; Figure 1A).

M. malabaricum leaves extract was also screened for anti-inflammatory potential with the protein denaturation



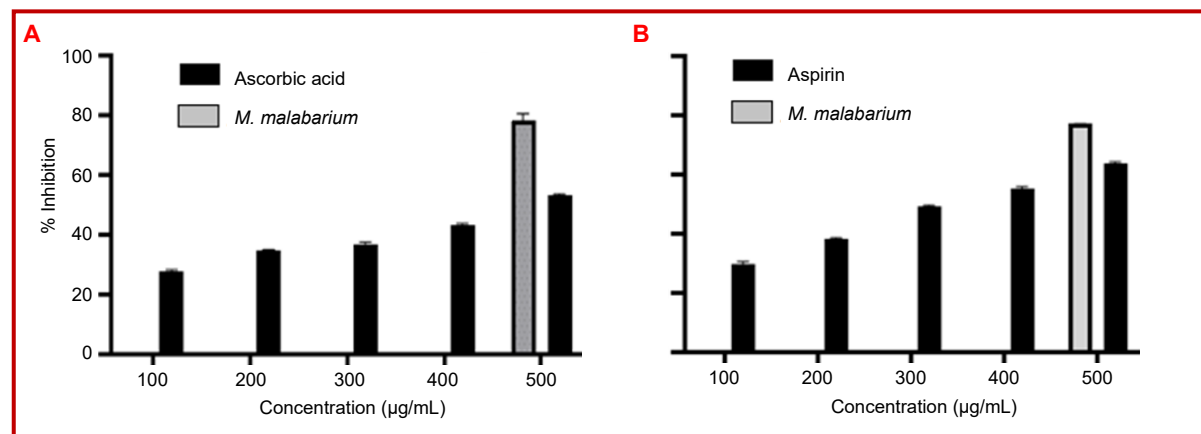


Figure 1: Antioxidant (A) and *in vitro* anti-inflammatory (B) activities of *Memecylon malabaricum* leaves extract

method using aspirin as standard. The protein denaturation is excellent *in vitro* model for analysis of the anti-inflammatory activity. The anti-inflammatory effects are preferred commonly in the antipsoriatic treatment as these may reduce the pains associated with it. *M. malabaricum* leaves extract showed 63.6% anti-inflammatory activity compared to aspirin which exhibited 77.1% anti-inflammatory activity (Figure 1B). Thus, further preclinical studies are recommended to identify the underlying mechanisms.

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