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Letter to the Editor

Anti-inflammatory and antifungal activity of *Dracaena victoria* leaf extract

Sir,

Non-steroidal anti-inflammatory drugs (NSAIDS) are the commonly for the management of inflammatory condition. However, these medicines possess various adverse effects, particularly gastric irritation, ulceration that lead to gastric bleeding or perforation. Thus, in recent years, the search for phytochemicals and natural sources with anti-inflammatory properties has greatly increased (Gunathilake et al., 2018).

From the genus *Dracaena, Draceana angustifolia* Roxb. was reported to have anti-inflammatory activity. This effect is mediated by two steroidal saponins drangustosides (A-B) (Hui-Chi et al., 2013). The anti-inflammatory effect of another plant of this genus *Dracaena victoria* is not yet known. The antibacterial activity of *D. victoria* leaf extract was reported (Ranjitha et al., 2019). Compared to ethyl acetate, petroleum ether extract showed significant antibacterial activity against *L. monocytogenes* at 100 mg/mL concentration. In the present study, anti-inflammatory and antifungal activity of this plant were examined.

Dracaena victoria plant leaves were collected freshly from VIT, Vellore and sterilized by rinsing them with tap water followed by double distilled water. Then dried under shade at room temperature for two weeks. Using motor and pestle, dried leaves were powdered. About 10 g of powder was dissolved in 150 mL of ethyl acetate and petroleum ether solvent respectively. Then the mixture was sealed and kept in a shaker overnight. The mixture was filtered using Whatman filter paper and the dried crude extract was used for studying anti-inflammatory properties (Nagham, 2013; Anupam et al., 2008).

The anti-inflammatory activity was tested by using the *in vitro* albumin denaturation method. Different concentrations of ethyl acetate and petroleum ether (50, 100, 150 µg/mL) were prepared in DMSO solvent. 2 mL of these extracts of different concentrations was added to the mixture containing 500 µL of 1% bovine serum albumin. This mixture was incubated and left undisturbed at room temperature (37°C) for 20 min. Then, it was heated at 51°C for 20 min. The solution obtained was cooled down to room temperature and absorbance was taken at 660 nm. Aspirin was used as a reference drug in the experiment. The experiment was carried out in triplicates and the %inhibition of protein denaturation was calculated (Gayathri et al., 2019).

%Inhibition= Absorbance control—Absorbance test/ Absorbance control ×100

Antifungal activity of the leaf extract was determined using agar well diffusion assay. Potato dextrose agar medium was prepared and poured into a petri plate. Based on the availability, *Irpex lacteus* used as test strain. The fungal strain was prepared as lawn over the solidified media. Wells were prepared and 100 µL of the crude extract obtained from both solvents (ethyl acetate and petroleum ether) of concentration 2.5, 5, 100 mg/mL were added. The plates were incubated at 25°C for 3 days. After the incubation, petri plates were tested for the zone of inhibition. Fluconazole was used as a positive control (Ranjitha et al., 2019).

Thin-layer chromatography was done for both the extracts, the sample was prepared by dissolving the extracts in their respective solvent and the spots were made on the TLC sheet. By testing solvents at different proportions the optimal solvent system was confirmed. The solvent system used here is petroleum ether: acetone (7:3). The separated bands were viewed under UV wavelength of 254 nm (Gayathri et al., 2019).

Compared to petroleum ether extract, ethyl acetate showed maximum activity. Ethyl acetate extract showed maximum activity at 50 µg/mL concentration which is related to standard ascorbic acid value. The *in vitro* anti-inflammatory activity of the extracts was shown in Figure 1.

Both the extracts showed substantial inhibition on test fungi *Irpex lacteus*. Compared to petroleum ether, ethyl acetate extract showed maximum activity. The zone of inhibition was shown in Table I and Figure 2.

Both the extracts produced a distinctive bands in the TLC sheet at 7:3 (petroleum ether: acetone) solvent system and the results were shown in Figure 2.

The antibacterial activity of *D. victoria* ethyl acetate and petroleum ether extract showed significant antibacterial activity against *L. monocytogenes* at 100 mg/mL concentration (Ranjitha et al., 2019).

The present study highlights that the extracts (ethyl acetate and petroleum ether) from *D. Victoria* serves as

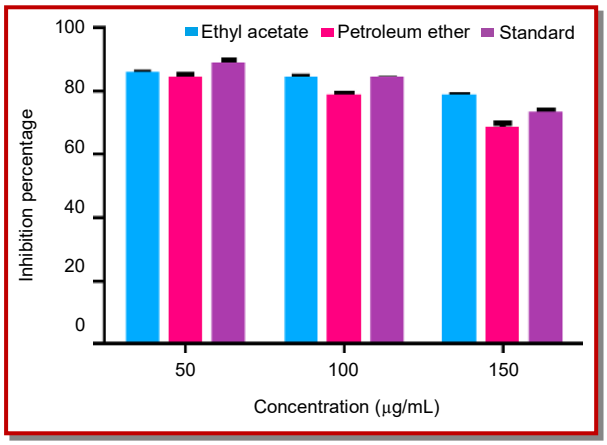

Figure 1: *In vitro* anti-inflammatory activity of the crude extracts by showing the inhibition of albumin saturation

Table I

Antifungal activity of the leaf extracts

Extract	Concentration (mg)	Zone of inhibition (cm)
Ethyl acetate	2.5	1.0
	5	1.2
	10	1.3
	Positive control	-
Petroleum ether	2.5	0.5
	5	0.9
	10	1
	Positive control	-

"-": No zone of inhibition observed

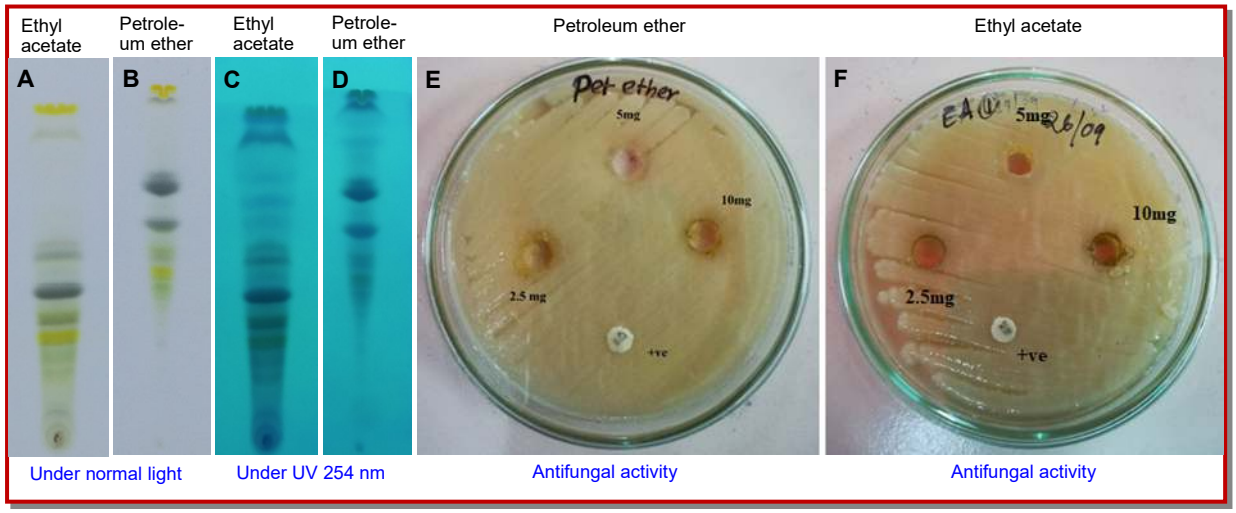

Figure 2: TLC sheet of the ethyl acetate and petroleum ether extracts (A-D); Antifungal activity of petroleum ether and ethyl acetate extracts (E,F)

a potential antifungal and anti-inflammatory agent under *in vitro* condition. On comparing both the extracts, ethyl acetate extract showed significant anti-inflammatory and antifungal activity.

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