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EVALUATION OF ANTI-TUSSIVE ACTIVITY OF PHYLLANTHUS NIRURI FRUIT EXTRACT ON COUGH REFLEX INDUCED BY SULPHUR DIOXIDE IN MICE

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Phyllanthus niruri which is commonly known as "Bhuiamla is a well known plant used in traditional medicine in India". Extracts of this herb have been proven to have therapeutic effects in many clinical studies. The active phytochemicals such as flavonoids, alkaloids, terpenoids, lignans, polyphenols, tannins, coumarins and saponins, have been identified from various parts of *P. niruri*. The fruits of *P. niruri* is used in folklore medicine for cough. The present study was conducted to study the anti-tussive activity of the fruit extract on cough reflex induced by sulphur dioxide in mice

The fruits of *Phyllanthus niruri* were collected from plantation in medicinal garden, School of Pharmacy, Devi Ahilya University, Indore. The coarse powder of fruits was extracted with methanol (90%v/v) using a soxhlet apparatus. The extract was evaporated under reduced pressure until all the solvent had been removed to give an extract sample with a yield of 8.6%w/w. Swiss albino mice of either sex weighing between 35-45 gm were used for these experiments. The animals were used for the experiment after an acclimatization period of one week. Ethical clearance was taken before performing experiments and all experiments were conducted in accordance with Institutional Animal Care and Use Committee (IACUC) guidelines. Anti-tussive effect against sulphur dioxide (SO2)-induced cough was evaluated by the standard protocol. Animals were divided into four groups, containing six mice in each group. One served as control group, two groups for methanol extract of fruits *Phyllanthus niruri* (200 and 400 mg/kg, p.o.) and the remaining group was used for standard drug codeine phosphate (10 mg/kg, p .o.). The control groups of animals were treated in the similar manner, which received only normal 2 % Tween 80 solution (10 ml/kg, p.o.). The experimental results have been expressed as the mean±SEM. Significance was evaluated using the students "t" test.

Both in the case of codeine phosphate and extract of *Phyllanthus niruri*, the maximum inhibition of cough reflex was observed at 90 minutes after drug administration. The highest inhibition of cough (58.76 %) was produced by the extract at the dose of 400 mg/kg (p.o.) at 90 minutes of the experiment, whereas codeine phosphate (10mg/kg) showed maximum 63.35% inhibition at 90 minutes of the experiment. The result obtained with 200 and 400 mg/kg dose of extract were statistically significant ($p < 0.001$) throughout the time span of experiment.

In conclusion the results of the present study provide experimental evidence in support of folklore claim of *Phyllanthus niruri* fruit as an anti-tussive agent.

Keywords: *Anti-tussive, Fruit, Codeine phosphate, Phyllanthus niruri*