

In vitro evaluation of antacid potential of *Punica granatum* and *Musa peels*

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Abstract

First report on antacid effects of peeled crude extract of the *Punica Granatum* and *Musa Peels*. The authenticated fruit was taken, dried, powdered & finally weighed. The activity of the extract was quantitatively determined by carbon dioxide evolution method. The antacid behavior was studied employing Rosette-Rice test. The *Punica Granatum* and *Musa Pills* extract showed a significant results for antacid effect ($P < 0.05$) at different doses and the results obtained were comparable to that of standard NaHCO_3 . The results of the present study suggest that extract of *Punica Granatum* and *Musa peels* significantly neutralized acid and showed resistance against change in pH and also illustrate good antacid property. The extract of *Punica Granatum* and *Musa Peels*, has shown to possess significant antacid property.

Keywords: *punica granatum*, *musa peels*, antacid, rosette-rice

Introduction

When the stomach contains an excessive amount of hydrochloric acid, the condition is called as hyperacidity or acid dyspepsia. Common symptoms of dyspepsia are typical feeling of restlessness, feeling of nausea, actual vomiting, sour bleching with an aftertaste of the already-eaten food, stiffness in the stomach [1]. Today, there are different types of medicines available to treat stomach acidity. They are categorized as either antacids, antihistaminic or proton pump inhibitor [2].

Recent awareness of therapeutic potential of several traditionally used plants has opened a new dimension for the study and research of medicinal plants. In traditional medicine, several Indian medicinal plants or their extracts have been used to treat flatulence and gastric ulcers [3].

Use of plant products is increasing in many segment of the population. At present; thousands of plant metabolites are being successfully used for the treatment of variety of diseases [4]. The use of the medicinal plants is increasing in many countries where 35% of drugs contain natural products. *Punica Granatum* and *Musa Peels* is one of most essential spices the human stomach secretes hydrochloric acid which is necessary for the digestion of food [5].

Exhaustive literature survey revealed that the potential of *Punica Granatum* and *Musa peels* fruit in GIT ailment has not been exploited. Following this as a guiding factor in present research endeavor we here tried to evaluate scientifically the antacid properties of *Punica Granatum* and *Musa Peels* employing carbon dioxide evolution method & Rosette Rice test [6].

Material and Methods

Punica Granatum and *Musa Peels* were purchased from the commercial market of Akola (Maharashtra, India) and botanical authentication was carried out at the Department of Botany, Shri Shivaji College, Akola.

Fresh fruit pulp was homogenized and dried under shade and thus mass obtained was powdered and used for evaluation of antacid properties.

Determination of antacid potential

Three different quantities i.e. 2.5, 5 and 7.5 gm of the drug extract of *Punica Granatum* and *Musa Pills* were taken for antacid evaluation using Rosette-Rice method and the results obtained were compared with standard sodium bicarbonate. Rosette-Rice curve was prepared for drug extract and standard [11].

Results and Discussion

Antacid Profile

The antacid profile was evaluated *in vitro* using Rosette-rice test. The Rosette-rice time for 2.5 gm of *Punica Granatum* was found to be 5.22 ± 1.23 while for 5gm dose it was 8.82 ± 1.42 and for 7.5 gm it was 9.16 ± 1.31 compared to standard 0.8gm NaHCO_3 which maintained the pH for 1.508 ± 0.015 min. and the Rosette-rice time for 2.5 gm of *Musa Peels* was found to be 4.40 ± 1.23 while for 5gm dose it was 7.83 ± 1.42 min and for 7.5 gm it was 8.98 ± 1.31 compared to standard 0.8gm NaHCO_3 (Fig. 1) which maintained the pH for 1.508 ± 0.015 Rosette -Rice curve was prepared for drug extract and standard. Assays of all samples were conducted in triplicate and averaged.

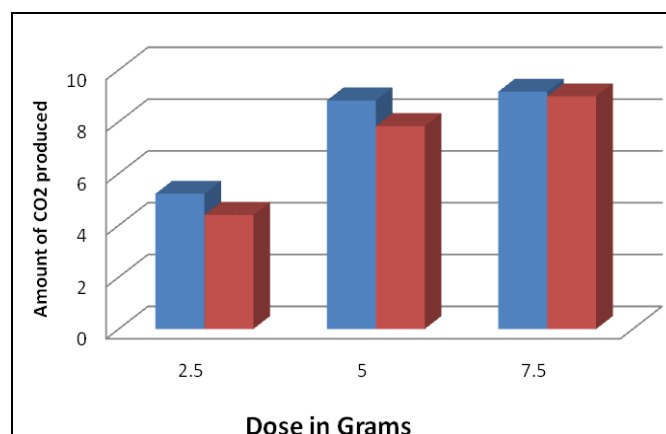


Fig 1: Antacid Profile

Now a day the problem of acidity is very common and the main causes behind this is over strenuous life style, smoking and dependence on junk food. Antacids are agent that neutralizes the stomach acid responsible for dysfunction of stomach [7, 8]. But they are meant to be used only occasionally. They should not be taken continuously for more than two weeks unless under a physician's directions as they produce serious side effects such as loss of appetite, mood changes, muscular pain, nervousness, weakness, constipation, stones in kidney etc. This is related to gastric residence time i.e. how long a drug can maintain the pH of stomach above 3 [9, 10]. The results of present study indicate that the Rosette-Rice time is dose dependent. However, the Rossett-Rice dynamic test conditions can be fulfilled by drug extract of *Punica Granatum* and *Musa Peels* only at doses higher than the standard dose for antacid activity. But the higher dose of *Punica Granatum* and *Musa Peels* be safely ingested in view of its safety profile. Results of present study suggested that the drug extract of *Punica Granatum* and *Musa Peels* has carminative property even at its lowest dose (2.5 gm). It is suggested that herbal remedy for acid reflux can be used as the treatment of choice firstly because they cure the symptoms by strengthening the digestive system and secondly they result little or no side effect.

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