

Phytochemical Screening and Antioxidant Potential of *Praecitrullus fistulosus*

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ABSTRACT:

The study of free radicals and antioxidants in biology is producing medical revolution that promises a new age of health and disease management. The present study was performed to evaluate antioxidant effect of petroleum ether and methanolic extract of *Praecitrullus fistulosus* against free radical damage by standard method as DPPH (1,1-diphenyl-2-picrylhydrazyl) free radical model. Results indicate that fruits possess varying degree of antioxidant activity when compared with standard ascorbic acid. The IC₅₀ of pet-ether extract is 18µg/ml and ethanol extract is 20µg/ml.

Keywords: *Praecitrullus fistulosus*, DPPH, Antioxidant

INTRODUCTION:

Free radicals are established to be a product of normal metabolism. Although oxygen is indispensable for aerobic forms of life, oxygen metabolites are highly toxic. As a result, reactive oxygen species (ROS) are known to be concerned in many cell disorders and in the expansion of many diseases including cardiovascular diseases, atherosclerosis, chronic inflammation etc. [1-2] Antioxidants are micronutrients that have gained importance in recent years due to their ability to neutralize free radicals or their actions. [3] Synthetic antioxidants are widely used but their use is being restricted nowadays because of their toxic and carcinogenic effects. Thus, interest in finding natural antioxidants, without any objectionable effect, has increased greatly. [4]

In the series of medicinal plants, *Praecitrullus fistulosus* is one of the excellent plant, gifted by the nature having composition of all the essential constituents that are required for normal and good human health. *Praecitrullus fistulosus* is commonly known as Tendu in Punjabi, Tinda kaaya in Telugu, Kovaikkaai in Tamil and Indian round gourd in English. Leaves are alternate and usually palmately 5-lobed or divided,

stipules are absent. Flowers are actinomorphic and nearly always unisexual. The perianth has a short to prolonged epigenous zone that bears a calyx of 3-6 segments or lobes and 3-6 petals or more frequently a 3-6-lobed sympetalous corolla. The fruit is a type of berry called a pepo by Gerald Carr. The fruits are approximately spherical, and 5–8 cm in diameter. [5] *Praecitrullus fistulosus* may be a useful source of resistance to whiteflies for the improvement of watermelons. [6] The seeds of tinda are roasted and consumed in the same way as watermelon or egusi seeds. In India, tinda is used as fodder and in medicine. [7] Hence, it was proposed to evaluate the efficacy of Plant extracts for their antioxidant potential.

MATERIAL AND METHODS:

Plant material

The fresh fruits of *Praecitrullus fistulosus* were procured from the local market of Bhopal (M.P.). Plant specimens were identified and authenticated by Department of Pharmacognosy, R.K.D.F. College of Pharmacy, Bhopal (M. P.) where the voucher specimen has been preserved for the future references. The fruits were washed under running water to remove adhering dirt, shade dried and converted into moderately coarse powder by mechanical grinder

Preparation of extracts

The powdered plant material (about 44 gm) was defatted with petroleum ether (60-80 °C) and then extracted with 200 ml of methanol (95%) in a soxhlet apparatus. The solvent was removed under reduced pressure, which obtained a dark greenish and blackish sticky residue (yield: 2.6% w/w and 47% w/w) with respect to dried plant material. The dried extract was stored in a desicator till further study.

Preliminary Phytochemical Screening

Extracts of *Praecitrullus fistulosus* were subjected to various qualitative tests for the identification of various plant constituents present in the plant. [8]

ASSESSMENT OF IN VITRO ANTIOXIDANT ACTIVITY

DPPH free radical scavenging activity

Preparation of standard solution [9]

Required quantity of Ascorbic acid was dissolved in methanol to give the concentration of 10, 20, 30, 40 and 50 µg/ml.

Preparation of test sample

Stock solutions of samples were prepared by dissolving 10 mg of dried methanolic extract in 10 ml of methanol to give concentration of 1mg/ml.

Preparation of DPPH solution

4.3mg of DPPH was dissolved in 3.3 ml methanol; it was protected from light by covering the test tubes with aluminum foil.

Protocol for estimation of DPPH scavenging activity

- 100µl DPPH solution was added to 3 ml methanol and absorbance was taken immediately at 516 nm for control reading.
- Different volume levels of test sample (10, 20, 30, 40 and 50) were screened and made 100 µl of each dose level by dilution with methanol.
- Diluted with methanol with up to 3 ml.
- 100µl DPPH solution was added to each test tube.
- Absorbance was taken at 516 nm in UV-visible spectrophotometer (Shimadzu, UV-1700, Japan) after 15 min using methanol as a blank.

RESULTS AND DISCUSSION:

Preliminary phytochemical screening

Preliminary phytochemical screening of pet ether extract of *Praecitrullus fistulosus* showed the presence of alkaloids, tannins and proteins, while methanolic extract revealed the presence of alkaloids, tannins, carbohydrates and cardiac glycosides.

Determination of Antioxidant activity by DPPH method

Both extracts produced significant DPPH radical scavenging activity from 10µg/ml. Antioxidant activity of *Praecitrullus fistulosus* was found to be increase with increasing concentration of pet- ether and methanol extracts. DPPH antioxidant assay is based on the ability of DPPH, a stable free radical to decolorize in the presence of antioxidant. The antioxidant activity of *Praecitrullus fistulosus* was compared with standard (ascorbic acid). The obtained results (As shown in fig 1) indicated that methanol extract has better antioxidant activity than pet-ether extract. The IC₅₀ of pet-ether extract is 18µg/ml and ethanol extract is 20µg/ml.

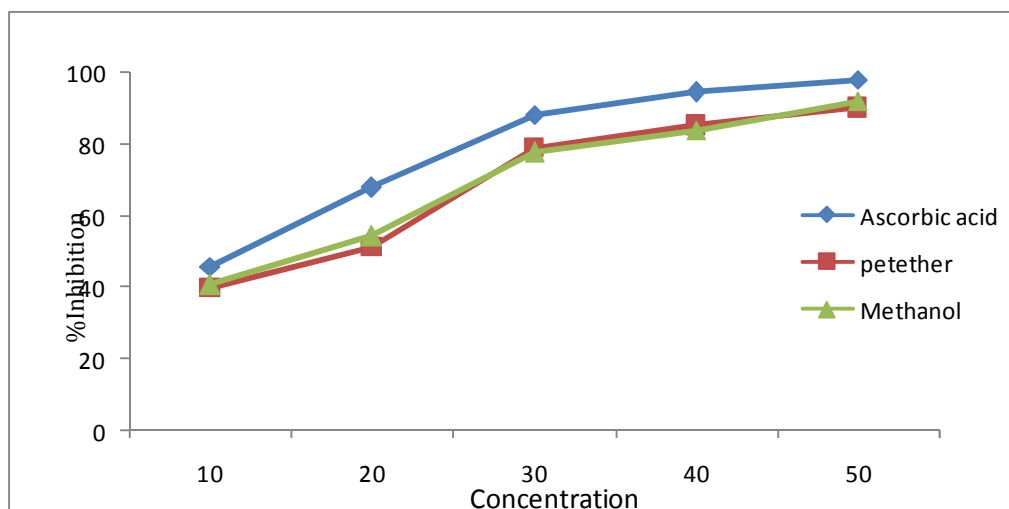


Fig. 1: *In vitro* antioxidant activity of *Praecitrullus fistulosus* by DPPH method

CONCLUSION:

Obtained results concluded that methanol extract of *Praecitrullus fistulosus* fruits possess varying degree of antioxidant activity than pet-ether extract when compared with standard ascorbic acid. The activities of the extract may be attributed to the presence of various secondary metabolites. Therefore, further works should be performed on the isolation and identification of the antioxidant components in methanoilc extract of *Praecitrullus fistulosus*.

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