



PHARMACOLOGY

## DETECTION OF FLAVONOLS FROM *TRAGIA PLUKENETII* A.R.SMITH

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### Abstract

Flavonols from *Tragia plukenetii* A.R. Smith were extracted by using different solvent and they were identified and detected by Paper Chromatography (PC) and spectroscopic method. Flavonols like kaempferol, Quercetin were detected from *T.plukenetii* A.R.Smith.

**Keywords:** Flavonols, *Tragia plukenetii* A.R.Smith, PC, Spectroscopy

### Introduction

Flavonols are widely distributed in plants as co-pigments to anthocyanins in petals and leaves of higher plants. They are found in the form of glycosides. The highly hydroxylated flavonols such as quercetin and myricetin which occurs in plants possess a number of medicinal values. Quercetin is of pharmaceutical interest in relation to the treatment of capillary fragility in man and reduces the aggregation of erythrocytes (Daniel M., 1991). Kaempferol always shows the cardiotoxic activity, as well as kaempferol and myricetin both shows antioxidant and antiulcer activity (Parmar & Parmar, 1998). Flavonoids, play a protective role in liver and cardiovascular diseases (Kim et al, 1993). It protect from heart diseases (Di Maji et, al, 2005, Hertog et al,1993). The main interest of the present study is that plants are morphologically similar but chemotaxonomically different. *Tragia plukenetii* A.R.Smith, is hirsute, scandent undershrub (Family-Euphorbiaceae) much branched, hispid with stinging hairs, leaves palmately 3-partite, pinnatifid, petioles and leaf mainly hispid with stinging hairs and found in hedges around fields, along roadsides. This plant is well studied taxonomically but flavonols chemistry is ignored. Hence, the present study was undertaken to detection and identification of flavonols in the same plant.

### Materials and Methods

*Tragia plukenetii* was collected from Dabhad, Dist Nanded (M.S.), India and it was identified on the basis of the morphological characters up to the species level.

### Preparation of plant extract for flavonols

5g of powdered leaves of *Tragia plukenetii* were boiled with 200ml of distilled water for 30 min. The extract was filtered, filtrate transferred to a 500ml Round Bottom flask. Then, 15ml of conc. HCl added and refluxed for 1 hour in a water bath. The flask was cooled and the aglycone precipitated was extracted in 50ml solvent ether by shaking the hydrolyzed extract with ether in a separating funnel. The yellow ether layer was taken in 100ml beaker. The ether was allowed to evaporate. The residue was taken and dissolved in 2ml of acetone. This acetonic solution was prepared and banded on chromatographic papers. The chromatogram was developed in forestal solvent (conc. HCl- acetic-acid- water, 3:30:10). These papers were dried and identified the color under UV (365nm) light. Then, one chromatogram was sprayed with 10% sodium carbonate and the color of bands were observed and calculated  $R_f$  values of each flavonols.

### Spectral analysis

The proper bands were marked by pencil in unsprayed chromatograms were cut out and taken in clean test-tubes. The compounds were eluted with methanol. The elution was continued till the paper become colorless. The absorption spectra of this solution of pure flavonols were determined in the range 200-400 nm using a spectrometer.

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Table 1. Detection of flavonols from *Tragia plukenetii* A.R. Smith on the basis of the colors,  $R_f$  values and absorption maxima

Sr. No.	Color in		$R_f$ (x100) in Forestal	Spectral max. in Me OH <sub>(nm)</sub>	Flavonols
	UV	Na <sub>2</sub> CO <sub>3</sub>			
01	Yellow fluorescent	Yellow	55	367	Kaempferol
02	Yellow fluorescent	Yellow-brown	41	370	Quercetin

## Result and Discussion

Flavonols like kaempferol and quercetin were detected from *Tragia plukenetii* A.R. Smith by Paper Chromatography (PC) and spectroscopic method. Firstly, kaempferol and quercetin were appeared as yellow fluorescent bands under UV light. The chromatogram was sprayed with 10% sodium carbonate solution, then kaempferol and quercetin turned yellow at first, but quercetin band turned to yellow brown in color and kaempferol band was observed as yellow in color. The  $R_f$  values of both flavonols were measured as 55 (kaempferol) and 41 (Quercetin) in Forestal solvent system. The spectral values of these flavonols were observed in methanol as 367 and 370 nm; respectively (Table 1). *Tragia plukenetii* is neglected because of its stinging hairs characters but it contains flavonols, kaempferol and quercetin. These flavonols widely used in medicine because it shows antioxidant and antiulcer activity and

also protective role in liver and cardiovascular diseases. So this stinging hairs plant is also source of flavonols.

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