



Quantification of Total Flavonoids of Selected Medicinal Plants used for Antiurolithiatic activity

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ABSTRACT

Plants have been the major source of potential secondary metabolites which are used to cure various human diseases. Tribals as well as the rural people depends for all their medicinal necessities on surrounding plant wealth because of their phytochemical constituents.[1] Today large number of peoples are suffering from kidney stone, gall stone, Urinary calculi. For this study 11 medicinal plants *Asparagus racemosus*, *Capsicum annum*, *Cassia fistula*, *Citrus medica*, *Citrus aurantium* Fruit rind, and Complete fruit, *Glycine max*, *Phyllanthus emblica*, *Psidium guajava*, *Tribulus terrestris*, *Tridax Procumbens*, *Solanum lycopersicum* were selected. The aim of the present study was to investigate the presence of total flavonoids content of the selected medicinal plants. Crude extracts of different parts such as Fruit rind, complete fruit, whole plant, roots, were used to determine total Flavonoids contents. The amount of Total flavonoid was analyzed using aluminum chloride calorimetric assay. The result indicated that *Phyllanthus emblica* and *Psidium guajava* plant are rich in flavonoids and hence show high potential of antiurolithiatic activity.

Keywords: Antiurolithiatic activity, Flavonoids, Medicinal plants, Quantification, Secondary Metabolites.

1. INTRODUCTION

Urolithiasis or Kidney stone is formation of urinary calculi at any level of urinary tract., the kidney, the ureter and the urinary bladder and may vary considerably in size. The problem of urinary stones or calculi is very ancient one and many remedies have been employed during the ages. It is estimated that 12 % of world population experiences renal stone diseases with a recurrence rate of 70-80% in male and 47-60% in female. [2,3]. Urinary calculi are third most common affliction of the urinary tract which are exceeded by the urinary tract infections and prostate diseases. [4]. Herbs and herbal drugs have created interest among the people by its clinically proven effects like immunomodulation, adaptogenic and antimutagenic. [5]. Also, the overuse of synthetic drugs which results in higher incidence of adverse drug reactions has motivated humans to return to nature for safe remedies. Plants consists of various phytoconsituents which have pharmacongistic effect. Flavonoids is one of them which have high potential of antiurolithiatic activity.

2. MATERIAL AND METHOD

2.1 MATERIAL

Asparagus racemosus, Capsicum annum, Cassia fistula, Citrus medica, Citrus aurantium Fruit rind, and Complete fruit, Glycine max, Phyllanthus emblica, Psidium guajava, Tribulus terrestris, Tridax Procumbens, Solanum lycopersicum.

2.2 QUANTIFICATION OF TOTAL FLAVONOIDS

It was estimated from powder of the selected plant by [6]. The total Flavonoids content of the selected plants was estimated by spectrometrically using the established method. 0.5 ml of appropriately diluted extract solution was mixed with 2.0 ml of distilled water and consequently with 0.15 ml of 5% of solution nitrite solution and maintained for 6 minutes. Then, 0.15 ml of 10% aluminum chloride solution was added and allowed to stand for 6 min, and finally 2.0 ml of 4% sodium hydroxide solution was added- Final volume of the contents was made up to 5.0 ml with distilled water and was mixed thoroughly. After 15 min of incubation at laboratory temperature, the absorbance was determined against blank at 510 nm. The total flavonoids content was determined using a standard curve with rutin. The mean of the three values were expressed as milligrams of rutin equivalents (mg RE/ g extract) on dry weight basis.

Table: Quantification of Flavonoids for selected medicinal plants

Name of Plants	Mean (mg/g)	±SD	F ratio	P
<i>Capsicum annum</i> L.	86.7	±0.23	0.523	NS
<i>Psidium guajava</i> L.	135.1	±0.23		
<i>Phyllanthus emblica</i> L.	259.1	±0.23		
<i>Tribulus terrestris</i> L.	33.9	±0.23		
<i>Tridax procumbens</i> L.	28.7	±0.23		
<i>Asparagus racemosus</i> L.	28.7	±0.23		
<i>Citrus medica</i> L.	40.7	±0.23		
<i>Citrus aurantium</i> L. fruit rind	96.7	±0.23		

<i>Citrus aurantium</i> L. complete fruit	133.9	±0.23	
<i>Glycine max</i> L.	ND	ND	
<i>Cassia fistula</i> L.	75.5	±0.23	
<i>Solanum lycopersicum</i> L.	59.5	±0.23	

SD: Standard Deviation; P: Probability ratio; NS: Non-Significant

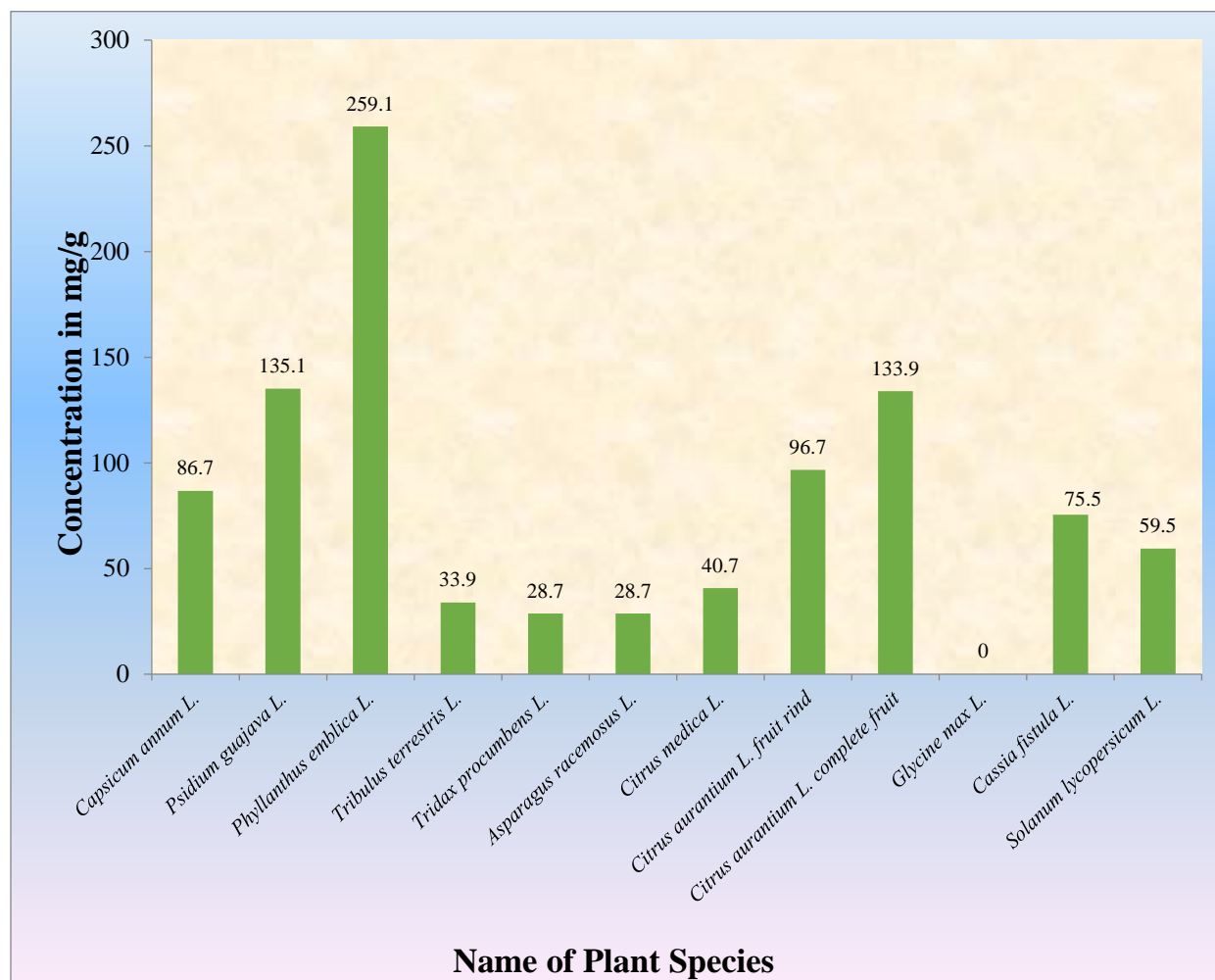


Fig. 1: Flavonoids contents in the extract obtained from selected medicinal plants



3. RESULT AND DISCUSSION

The data in **Table 1.** presents concentration of flavonoids in the plant extract obtained from various plants. The extract obtained from *Phyllanthus emblica* and *Psidium guajava* indicated mean flavonoids to be 259.1 ± 0.23 and 135.1 ± 0.23 mg/g of plant extract respectively. The data indicated significant difference in the concentration of flavonoids vis-à-vis extract from different plants (**Fig.1**). Thus, on the basis of the study results, it is concluded that different plant consists noticeably different amount of flavonoids.

4. CONCLUSION

From the present investigation it is concluded that *Phyllanthus emblica* and *Psidium guajava* plants are rich in flavonoids and hence show high potential of antiurolithiatic activity.

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