

PHYTOCHEMICAL INVESTIGATION OF LEAVES OF SIX INDIGENOUS SPECIES OF *FICUS* L.

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ABSTRACT

Species of *Ficus* L. have great medicinal importance and *Ficus* plant parts extracts traditionally used as medicines due to their bioactive constituents. An attempt was made to find out the phytochemicals of *Ficus* species (*F. benghalensis*, *F. religiosa*, *F. elastica* and *F. benjamina* collected from Karachi University campus and *F. carica* and *F. virens* collected from Murree). The methanolic extracts of leaves were obtained by standard methods. Tannins, Coumarins, Saponins, Flavonoids, Carbohydrates, Proteins, Phenols, Phlobatannins, Glycosides and Terpenoids were found in most of the *Ficus* species investigated.

KEY-WORDS: *Ficus* species, methanolic extract, leaves extract, phytochemicals.

INTRODUCTION

The genus *Ficus* L. is a huge tropical deciduous, woody plants including 800 species found in major regions of tropical and subtropical forests throughout all over the world (Berg, 1989) and 29 species indigenous to Pakistan (Hameed, *et al.*, 2006). This genus consists remarkable variation in its species and habits (Jander and Machado 2008). *Ficus* plants have been used as an alternative medicine for centuries against the cure of several human diseases because they contain numerous bio active ingredients which have curative value (Nastro *et al.*, 2000). The potential of many *Ficus* species (higher plants) as source for new drugs is still largely unexplored. They would be potentially significant source of useful structures for the development of novel chemotherapeutic drugs. The present study was carried out to find out the phytochemicals of leaves of six *Ficus* species, namely *F. benjamina*, *F. benghalensis*, *F. religiosa*, *F. elastica*, *F. carica* and *Ficus virens* collected from Karachi and Murree, Pakistan.

MATERIALS AND METHOD

Collection of *Ficus* Species

Following *Ficus* species were collected from Karachi and Murree, Pakistan.

- 1) *Ficus benjamina* Linn (Weeping fig)
- 2) *Ficus benghalensis* Linn (Indian banyan or the wish fulfilling tree)
- 3) *Ficus religiosa* Linn (Bodhi tree or sacred tree)
- 4) *Ficus elastica* Roxb. (Rubber plant)
- 5) *Ficus virens* (Miq.) Corner (white fig)
- 6) *Ficus carica* Linn (Common fig or Fig)

Ficus benghalensis, *F. religiosa*, *F. elastica* and *F. benjamina* were collected from Karachi University campus. and *F. carica* and *F. virens* were collected from Murree.

Preparation of Extracts

Methanolic extract of plant parts were prepared by adding 10 g dried material in 100 mL of absolute methanol and kept in the airtight conical flask for 3 days and prevented from the evaporation. Filtration was done by Whatman's filter paper and allowed filtrate to evaporate. The residue left after evaporation was used for phytochemical analysis by using the standard methods described in Bradford (1976), Harborne (1998), Trease and Evans (1989) and Sofowora (1993) and details were published in our *Tetraena qatarensis* paper (Khan *et al.*, 2020).

RESULTS AND DISCUSSION

All species of *Ficus* are very rich in phytochemicals, most of the species have more than 70% phytochemicals (ten phytochemicals were investigated). Of the 10 phytochemicals 9 were found in *Ficus benghalensis* and *F.*

benjamina followed by *Ficus carica*, *F. elastica* and *F. virens* where 7 phytochemicals were found. Among these less phytochemicals were found in *F. religiosa* (Table 1).

Table 1. Qualitative analysis of phytochemicals in different species of *Ficus* L.

| S. No. | Tests /Species | <i>F. benjamina</i> | <i>F. benghalensis</i> | <i>F. religiosa</i> | <i>F. elastica</i> | <i>F. virens</i> | <i>F. carica</i> |
|--------|----------------|---------------------|------------------------|---------------------|--------------------|------------------|------------------|
| 1 | Tannins | + | + | + | + | - | - |
| 2 | Coumarins | + | + | + | + | + | + |
| 3 | Saponins | - | + | - | - | - | + |
| 4 | Flavonoids | + | - | + | - | + | + |
| 5 | Carbohydrates | + | + | - | - | - | + |
| 6 | Proteins | + | + | + | + | + | + |
| 7 | Phenol | + | + | + | + | + | + |
| 8 | Phlobatannins | + | + | - | + | + | - |
| 9 | Glycosides | + | + | + | + | + | + |
| 10 | Terpenoids | + | + | - | + | + | - |

Key: -, Negative (absent), +, Positive (present)

These phytochemicals include phenols, flavonoids, tannins, coumarins, glycosides, saponins and terpenoids. Egbuna and Ifemeje (2015) reported that various secondary metabolites especially flavonoids are responsible for antimicrobial activity. Tannins in the form of tannic acid were found as a bio active compound showed inhibition against *Penicillium digitatum* (Zhu *et al.*, 2019). Sun *et al.*, (2009) and Takahashi *et al.* (2010) stated that Saponins have wide range of properties, including activity of pesticides, and fungicides, and other industrial applications such as foaming and surface-active agents. our data showed a huge amount of phenolic compound, and these Phenolic compounds are helpful in health-improvement and have great potential of antioxidant activity (Caro and Piga, 2008). These compounds are recognized as a curative activity against several pathogens and therefore could suggest the use traditionally for the treatment of various illnesses such as cardiovascular, neurodegenerative, diabetes and hepatic diseases (George *et al.*, 2009; Nawaz *et al.*, 2019; Hassan *et al.*, 2004; Usman and Osuji, 2007). These plants have antibacterial, antidiabetic, anti-obesity, hepatoprotective, cardio-protective, renal-protective, stomachaches, piles, skin problems, inflammation as well as anticancer properties (Joseph and Raj, 2010; Al-Snafi, 2017; Deepa *et al.* 2018; Makhija *et al.*, 2010).

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