

***Flacourtia indica* (Burm. f.) Merr. – An Ethnopharmacologically valuable plant**Mousumi Chatterjee<sup>1</sup>, Indrani Chandra<sup>2</sup>, Sabyasachi Chatterjee<sup>3\*</sup><sup>1,2,3\*</sup> - Department of Biotechnology, The University of Burdwan, Golapbag, Burdwan-713104,  
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**Abstract:** The scientific study of folk remedies by different ethnic or cultural groups is called as ethnopharmacology. From the ancient age, herbal medicines are in use not only in poverty stricken communities but also in Western society. Rejection of synthetic or biomedical products has become a growing trend in modern culture and a craze is observed for natural medicines. *Flacourtia indica* (Burm.f.) Merr., commonly known as 'boichi' or 'Indian plum' is an useful medicinal plant, native to Africa, tropical temperate parts of Asia, India and various part of West Bengal and is becoming threatened day by day. This is a bushy shrub with a spiny trunk and branches belonging to the family Salicaceae. Modern pharmacological studies demonstrated that *F.indica* possess wide range of active chemical compounds with broad range of medicinal properties viz. antioxidant, hepatoprotective, antiasthmatic, antimalarial etc. The immense medicinal properties of *F. indica* may open an alternative door to the pharma industry.

**Key-words-** Ethno pharmacology, herbal medicines, *Flacourtia indica*.

**Introduction:** In some African and Asian countries, upto 80% of the population relies on traditional medicine for the treatment of various diseases. The demand of using traditional or herbal medicine is increasing day by day to avoid the side effects or drug resistance of synthetic clinical medicines. Traditional or folk medicines are also cheaper and easily available. *Flacourtia indica* (Burm. f.) merr., synonym of *Flacourtia ramontchi* (L'Herit) commonly known as 'boichi', 'indian plum' is a herbal medicinal plant native to Africa and widely distributed in Bangladesh and in various parts of india [1]. This is a bushy shrub of small tree with strong spiny, erect, branches, growing upto maximum height of 15 mt. The fruit itself is a pome, purplish in colour and sweetish with an acidic tang in taste.

Figure 1: *Flacourtia indica*

Figure 1: Inflorescence

**Taxonomy:****Scientific classification**

Kingdom: Plantae  
(Unranked): Angiosperms  
(Unranked): Eudicots  
(Unranked): Rosids  
Order: Malpighiales  
Family: Salicaceae  
Genus: Flacourtia  
Species: *F. indica*

**Binominal Name:** *Flacourtia indica* (Burm.f.) Merr

**Recent pharmacological activities:** According to the history of literatures very few pharmacological activities was established for *F.indica*. These can be accounted as follows –

**Hepatoprotective activity (methotrexate induced hepatotoxicity):-** It was reported that the *F. indica* shows hepatoprotective activity against methotrexate induced hepatotoxicity. This study revealed that the petroleum ether extract of aerial parts, result indicate that the dose of 350 mg/kg orally for 5 days significantly improved level of marker enzymes for liver function and oxidative stress [2].

**Hepatoprotective activity (paracetamol induced hepatotoxicity):-** It was also investigated that the extraction of *F.indica's* aerial part in various solvent like methanol, petroleum ether, ethyl acetate were found to reduce the level of serum glutamic oxaloacetic transaminase(SGOT), serum glutamic pyruvic transaminase(SGPT),and serum alkaline phosphatase (SAP) in paracetamol induced hepatotoxicity. Among those solvent, petroleum ether and ethyl acetate exhibits most significant level of SGOT and SGPT [3].

**Hepatoprotective Activity (Carbon tetrachloride induced hepatotoxicity):-**It was established that the aqueous extract of *F.indica* also exhibits the hepatoprotective activity against the oxidative stress caused by the exposure of hepatotoxin carbon tetrachloride [4].

**Antioxidant Activity:-**Phytochemical analysis of *F.indica* showed that the presence of alkaloids, tannins, saponins, flavonoids, glycosides, phenolic compounds, terpenoids and steroids. It was reported that the aqueous and methanolic extract of *F.indica* exhibits potent free radicals scavenging and antioxidant activity. Hence it was proved that *F.indica* was an important therapeutic agent in antiaging and oxidative stress related degenerative diseases [5].

**Anti asthmatic Activity:** It was demonstrated that ethanolic leaf extract possess a prominent anti asthmatic potentiality as these extract contain various pharmacognologically active compound. The anti asthmatic activity of *F.indica* could be due to its bronchodialatory and cell stabilizing properties. A comparable study of ronchodialating effect of *F.indica* to ketotifen fumarate was also done *invitro* condition [6].

**Antimalarial activity:** It was reported that the aerial parts of *F.indica* possess strong antimalarial activity. Mainly phytocompound poliothryoside shows a strong antiplasmodial activity against the chloroquine-resistant strain of *Plasmodium falciparum* and selectivity index of this compound(>28) is similar to chloroquine [7].

**Diuretic activity:** It was evaluated that the ethanolic extract of *F.indica* shows a significant increment in the volume of urine along with the Na<sup>+</sup>, K<sup>+</sup>, Cl<sup>-</sup> ion concentration [8].

**Conclusion:** *Flacourtia indica* is one of the most useful indigenous medicinal plant in india. Some allied species of *F.indica* demonstrated various activities like anti-inflammatory, antimicrobial, antidiabetic effects explained due to the presence of various compounds viz. flacourtin, sitosterol, ramontoside, sugar, tannin, scoparone etc. Although very less pharmacological activities has been carries out but still it is considered as rich and valuable source of unique phytochemicals which can help to develop medicine against various diseases. So, the quantitative analysis of the various phytoconstituents based on *invitro* and *invivo* studies should be further investigated.

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