

ETHNOBOTANICAL AND PHYTOPHARMACOLOGICAL REVIEW OF *PISONIA ALBA* SPAN**TAMIZHAZHAGAN V, PUGAZHENDY K***

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ABSTRACT

Pisonia alba is used for the long period in various chronic diseases in traditional medicine use. To desire of this review is to search literature for the pharmacological properties toxicity studies, pharmacology studies and phytochemical exploration of anti-inflammation, antidiabetic studies, antioxidant, etc., and the amassed data may be helpful for the researchers to attention on the significance areas of research yet to be revealed. Widespread information about the plant has been together from various books, journals and ayurvedic classical texts, etc. Researcher and pharmacologist and Ayurveda treatment may be helpful security of the whole plant was settled in the criticism.

Keywords: *Pisonia alba*, Antioxidant, Ayurvedic, Novel drug, Ethno botanical.

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INTRODUCTION

Medicinal plants besides therapeutic agents are also a big source of information for a wide variety of chemical constituents which could be developed as drugs with precise selectivity [1]. Since primordial period various plants are being used for the progress of medicinal uses in trebles now a day in present scenario new drugs develop and phytomedicine for the treatment of various diseases human begins [2]. Urban forests and trees are getting more importance of evolving countries for pharmacy studies [3]. They are the vital components in urban biodiversity and play a major role of abatement of global warming [4]. Medicinal plants are a natural gift for human beings disease free and healthy life [5]. The herbal products today are considered to be safer to human and environment in India has different parts of several medicinal plants or their extracts are used for the treatment of various diseases [6]. Herbal medicines have not gained much importance due to the deficient in of scientific facts for their mechanism of exploit [7]. According to the World Health Organization state that traditional medicine is used in plant parts such as a leaf, stem, bark, and flowers estimated to be used medicine by 80% of the population most of developing countries [8]. Phytochemicals are bioactive chemicals of plant origin. The plant cooking did not affect significantly calcium bioavailability had a very high content of total oxalates, tannins, and dietary fibers, which reduced calcium bioavailability [9]. They are regarded secondary metabolic activity because the plants that manufacture them may be have little need for the human population. The extraction and characterization of several active phytocompounds from these green factories have given birth to some high activity drug profile [10]. Both primary and secondary compounds form phytochemicals, where in the primary constituents include chlorophyll, proteins, and common sugars and the secondary compounds are total terpenoid, flavonoids, alkaloids, phenolic compounds, glycosides, gums, tannins, and essential oils among others [11]. *Pisonia alba* has various activities carried and done by best results like *in vitro* propagation [12]. Nyctaginaceae is a small family of trees, to be used various human diseases using various formulated like shrubs and herbs distributed mainly in tropical and subtropical regions In around world [13]. Nyctaginaceae family totally 17 plants avail various tropical region and similar phytomedicine parallel to *Abronia latifolia* propagation and field crop production. Hawk moth pollination of *Mirabilis longiflora* [14]. *Boerhavia diffusa* the roots are reputed to be diuretic and laxative and are given for the treatment of anasarca, ascites, jaundice then hypoglycemic also

recovered [15,16]. *Boerhavia erecta* histochemical and biochemical and antioxidant diabetes, inflammation, stress, hepatotoxicity, jaundice, and heart failure effort done by similar family [17]. The extraordinary antioxidant, hepatoprotective, antibiotic, antidiabetic, and anticarcinogenic properties at hand identical plant [18]. *B. erecta* is a potential source have been discussed phytochemicals screening results such as shown on antioxidants enhance particular plant [19]. *In vitro* antibacterial activity and hypoglycemic activity of *Bougainvillea spectabilis* leaves extracts benefit [20,21]. Antidiabetic and hypolipidemic effects of the aqueous leaf extract to be used *Bougainvillea* species [22]. Antibacterial activity against *B. spectabilis* leaves extract *Escherichia coli* NCIM 2832 and *Micrococcus aureus* NCIM 5021 [23]. Evaluation of antimicrobial and antioxidant activities of *B. spectabilis* [24] proteins from *Mirabilis jalapa* possess anticancer activity controlled via an apoptotic pathway [25]. Importance of white flowered *M. jalapa* was respect to be its analyzed phytochemical extraction and best results given for antimicrobial screening [26] and antibacterial activity of *M. jalapa* flower act as against gastrointestinal pathogens [27]. *Nyctanthes arbor-tristis* act as against targeting pathogenic like bacteria [28] hepatoprotective and antipyretic effect of bark of *Nyctanthes arbor-tristis* use trebles [29]. Similar plants have so many disease cures and recovery acting traditional and now a day.

Hence, in this review monitoring plant conservation and awareness develop modern life. This review may be help made to investigate medicinal plants and health professionals, scientists and scholars operational in the field of pharmacology and therapeutics to develop various drugs synthesis and build new remedies various diseases (Table 1).

P. ALBA PLANT HISTORY

Pisonia is a genus of flowering plants in the 4 O'clock flower family, Nyctaginaceae. It was named for Dutch physician and naturalist Willem Piso (1611-1678). Certain species in this genus are known as catch bird trees, bird catcher trees or birdlime trees because their sticky seeds reportedly trap small birds shows on Fig. 1. Such sticky seeds are postulated to be an evolutionary feature of some island species for adherence of their seeds to birds; thereby facilitating dispersal of seeds between islands. The plant taxonomic in India [29] these include *Pisonia brunoniana* of Australasia and Polynesia and *Pisonia umbellifera*, which is widespread in the tropical Indo-Pacific region.



Fig. 1: *Pisonia alba* plant

HABITAT AND ECOLOGY

Pisonia is found on many of the Seychelles Islands that have had habitat restoration and subsequently is a key part of the habitat associated with high biodiversity and a complex food web. It is therefore not as easy as replacing *Pisonia* with other native tree species; it was discovered by [30] that *Pisonia* is the most common nest tree for the Seychelles warbler an endemic land bird brought back from near extinction by careful habitat management and translocation, thus showing that careful consideration of the entire island ecosystem is essential.

P. alba is a large evergreen shrub. It is originally from the beach forests of Andaman Islands. Leaves: Long, bountiful, and fresh green in color. If planted in good sunlight, the leaves may acquire a light yellow color. Flowers: The tree rarely flowers in India. The flowers are small, green, and inconspicuous. Uses: The leaves are edible. Young leaves are used as a vegetable. Leaves make good cattle feed too and are mostly used to treat rheumatism or arthritis.

PHYTOCHEMICAL ANALYSIS

The phytochemical of *P. alba* showed the presence of vitamin A, vitamin C, thiamine, riboflavin, nicotinic acid (vitamin B3), alkaloids, proteins, and fats. Vitamin C is one of the four dietary antioxidants, the others being vitamin E, vitamin A precursor β -carotene, and selenium [31]. Various reported to ethanol extract revealed the presence of tannins, saponins, steroids and phenolic constituents, insulinomimetic pinitol, and kerolytic allantoin [32]. Unfussy appearance in the chromatogram of leaves of *Pisonia grandis* revealed that 9-octadecenoic acid-1,2,3-propanetriyl ester, phytol, and n-hexadecanoic acid are the major phytoconstituents. Among the most prevailing phytoconstituents, n-hexadecanoic acid, 9-octadecenoic acid, and phytol are therapeutically significant molecules. Occurrence of these molecules in the extracts of *P. alba* validates the use of this plant in the treatment of various ailments by tribals and traditional healers.

Chemical composition

Secopisonic acid, 6,8-dimethylisogenistein, (+)-ent-Ficusol, pisoninol I, pisoninol II, isoquinoline, pisodienone, 2,6-dimethyl-1,4-benzoquinone, gold fussinol, pavonisol, β -hydroxypropisosyringone, α -hydroxypropiovanillone, α -hydroxypropisosyringone, C-veratrolyglycol, trans-methyl ferulate, vanillin, syringaldehyde, methyl syringate, 24-Methylene-3,4-seco-cycloart-4,(28)-en-3-oic acid, N-trans-Feruloyl-4'-O-methyldopamine, N-trans-feruloyltyramine, (+)-glaberide I, and Ethambutol [33]. Diethyl phthalate, and Phytol compound were identified and reported [34].

Medicinal properties

The upshot of the review will further assist in presenting its potential scientific use in modern medicine world antioxidant and antidiabetic

Table 1: *P. alba* classification

<i>P. alba</i> taxonomy	
Kingdom	Plantae
Phylum	Tracheophyta
Class	Magnoliopsida
Order	Caryophyllales
Family	Nyctaginaceae
Genuss	<i>Pisonia</i>
Species	<i>P. alba</i>

P. alba: Pisonia alba

Table 2: Phytomedicine studies of *P. alba*

S. No	Phytomedicine studies	References
1.	Analgesic, anti-inflammatory	[35-37]
2.	Hypoglycemic agent	[7,21,38-40]
3.	Antifungal	[20,23]
4.	Wound healing	[46]
5.	Rheumatism and arthritis	[33]
6.	Histological	[47]
7.	Antidiabetic	[22,32,38,41,48]
8.	Antioxidant	[5,11,44,45,49,53]
9.	Biochemical	[42,38]
10.	Thyroid hormone studies	[43]
11.	Microbial studies	[23,24,27]
12.	Blood glucose	[11,36]
13.	Enzyme activity	[50]

P. alba: Pisonia alba

solution for human and its developing drug design Table 2 shows in phytomedicine studies.

CONCLUSION

P. alba is used as an important ingredient in many ayurvedic formulations and phytomedicine compound just on basis of its traditional medicinal uses. It may be generated researchers good novel drug design and drug development using such a medicinal plant it's grow medicine ayurvedic revolution various cultivated, natural medicinal plant and ornamental, sea weed sea grass plants to be initiated conservation drug synthesis may be use this review approaches in future studies and formulate idea.

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