

IN PURSUIT OF NEW HERBAL SOURCES FOR INDIAN MEDICINE

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ABSTRACT: *Due to destruction of forest wealth and natural flora the sources of herbal medicine are becoming increasingly rare. So, it is high time to discover alternative sources of such drugs among plant species that are already available in large numbers. As a first installment of the series the medicinal properties of a few members of the family Phytolaccaceae are discussed here.*

The increasing scarcity of traditional herbal sources of drugs used in Indian medicine and the resultant threat for the sustenance of the systems need not be elaborated. There are only two possible alternatives to steer clear of this imminent danger:

- i. Conservation of our forests and cultivation of important medicinal plants, and
- ii. Simultaneous search for alternative herbal sources which can be exploited and can replace the traditional ones which are rare or unavailable.

The first aspect of the problem has received some attention from men and organizations interested in Indian traditional system of health care and the public at large. However, with the deteriorating resources position and increased demand for herbal drugs, one cannot remain complacent. Even scientific, judicious exploitation of our natural resources, as is advocated by conservationists for the developing world, might not salvage traditional systems of herbal medicine. To a realist, it is inevitable that more and more of such herbal sources

will become increasingly rare, in the decades to come. So, planners and policy makers in this area of scientific endeavour, must think in terms of discovering alternative sources of such drugs among plant species which are available in plenty. Of about 15,000 species of plants that we have in India, only about a thousand species are currently used in Indian medicine. Intensive studies on other available species should be undertaken before they could be incorporated into the system.

The floristic composition of India, and for that matter, any country, tend to change in course of time due to extinctions, evolution of new species, immigrations and introductions. Thus, we have here many adventives in this country which are naturalized and widespread. We are used to view these weeds only as 'eye-sores' and have not so far given a thought as to how far and in what way they can be utilized. It is time that we did. Many of the weeds that we have now, are reported to have important medicinal uses in their native homes and other areas of their distribution. Taking cues from these information, we can assimilate them into our system provided adequate

studies are conducted. It is with this intention in mind that we thought it worthwhile to introduce some such plants to

men of Indian medicine. It is up to them to try them out and vouch for their usefulness in Indian medicine.

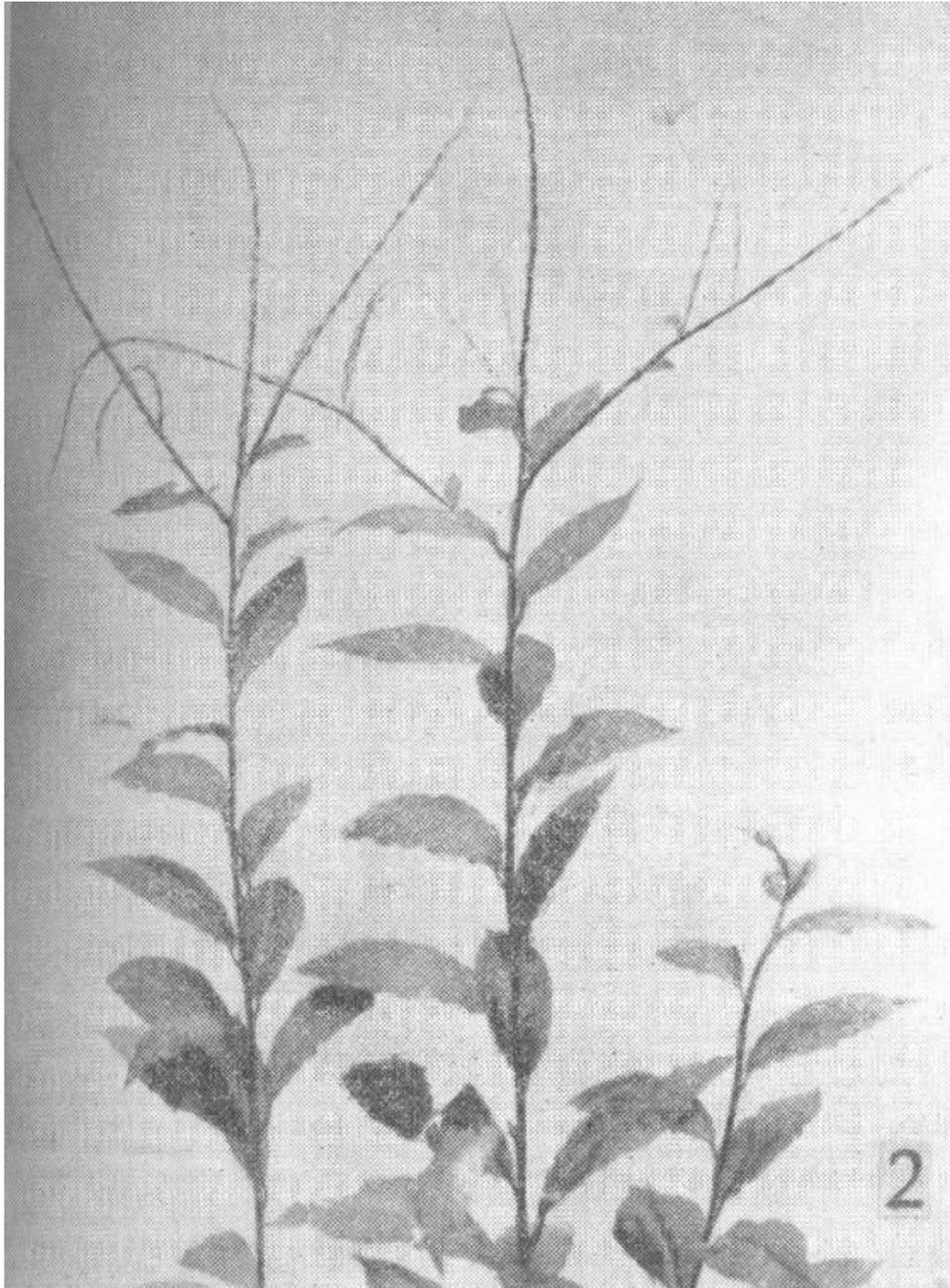


In the first installments of this proposed serial, we would introduce a few members of the family Phytolaccaceae. This family with about 17 genera and 120 species is largely concentrated in America, but a few have come to India and have established themselves in various parts of the country.

The genus *Phytolacca*, so named because of the pigments in their fruits (*Phyto* = plant, *lacca* refers to lac or pigment of their fruits) commonly called 'pokeberry' or 'pokeweed', has an uncanny ability to survive adverse conditions. The seeds can

withstand burial for more than 40 years (Toole & Brown, 1946) and establish themselves quickly away from the parental plants on disturbance. This ability might

have contributed substantially for the dissemination and establishment of the genus in various parts of the World, away from its native America.



Petiveria alliacea Linn

In general, species of *Phytolacca* are toxic, sometimes even fatal, to humans and livestock (Kingsbury, 1980). The plants as a whole and leaves and fruits in particular can cause gastric irritation, haematological problems, depression of the central nervous system with inhibition of heart and respiration, mental aberration and convulsions and dermatitis on contact (Rogers, 1985). The dangerous consequences of 'poke-weed mitogens' (PWM) which have the ability to stimulate mitotic proliferations following morphological alterations in the lymphocytes

are still being studied (Waxdal, 1974). However, young shoots and leaves of some species, e.g. *P. acinosa* Roxb. (= *P. esculenta* van Houtt) are eaten by the Himalayan people, after boiling and decanting a couple of times to remove the toxins. (Hooker, 1886). *P. Americana*, is a favourite delicacy of American Indians who serve it as 'poke salad'. Despite toxicity, the fruits have been used in colouring edibles and beverages (Forni et al, 1983) as a source of ink and as a poor dye for fabrics (Rogers, 1985). Some species have been cultivated as ornamentals.



Like any other poison, they have been found to have some important medicinal uses as well. The tincture of *P. decandra* was once a celebrated remedy for cancer in America and widely used in treating some form of chronic rheumatic complaints (Lindley & Moore, 1873). The roots are reported to be emetic and cathartic. The use of Phytolaccas as a narcotic and medicine has attracted the attention of phytochemists, for the last several decades and a formidable number of bioactive compounds have been detected. Sauer (1950), Steinmet (1960) and Byrd (1966) have done considerable work on this aspect. The triterpenoid saponins isolated from species of this genus esp. *P. dodecandra* which are collectively called 'phytolacca toxins', have aroused considerable interest as biodegradable, fairly safe molluscicides for controlling schistosomiasis (Lemma, 1973).

Phytolaccas are also found to have antiviral properties (Irwin, 1975, Irwin et al, 1980) and are capable of blocking the reproductive cycle of a large number of viruses in a large variety of hosts, by interfering with protein synthesis on the hosts ribosomes (Owens et al, 1973; Dallal & Irwin, 1978). These 'poke weed antiviral peptide' (PAP), as it is called, coupled with an antibody may also function as an anticancerous agent (Masuho et. al, 1982).

A few species of this potentially highly useful genus have been introduced into India. *P. acinosa*, cultivated in the Himalayan areas, is eaten as a vegetable. *P. dioica*, an arboreal species, has been reported from Kodaikana (Matthew, 1969), but is rare. However, *P. octandra*, often erroneously referred to as *P. dioica*, *P. americana*, etc., is fairly wide spread along road sides and waste places, at higher

elevations along western ghats. This bushy shrubs is common in the south Indian Hill stations, like Ooty and Kodaikanal. Though, little phytochemical, pharmacological and clinical studies have been done on this species, reports on closely related taxa points to the possibility of its having similar properties. The possible anticancerous properties along would justify the time, money and labour spent on studies on phytolaccas, because a cure for this dreaded disease has been elusive so far. In view of its availability and potential for rapid regeneration, it would certainly be worthwhile for men of Indian herbal medicine to undertake an in-depth study of this otherwise dreaded plant.

There are two more species of this family that have found their way to India rather recently, namely *Petiveria alliacea* Linn. and *Rivina humilis* Linn., They have established as ruderals in some restricted areas. Commonly called 'Garlic weed', the former is used by West Indians in their folk medicine, in various ways. Root infusions are given against flu, venereal diseases, cystitis, dysmenorrhoea, womb inflammation and in abortifacients. Leaves are rubbed and inhaled for head-ache and roots in bath for skin ailments. Steeped in rum, it is considered to be an aphrodisiac. The plant is also used as an antidote to poisoning and aid in parturition. Drinking it with camphor cubes it helps in arthritis. The latter is popularly known as 'dog blood' or 'blood berry' and its decoction is cure for colds and diarrhoea. Pounded leaves are used for wound dressing and to treat catarrh. With *Eryngium*, it cures eye diseases. Decoction of the entire plant cure jaundice and chest pain and berries alleviate dysentery and amenorrhoea (Ayensu, 1981).

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