

Farm weeds of Gujarat: Exploiting the medicinal potential in Ayurveda

In recent times, farmers of Gujarat have been accepting and exploiting organic ways to do the farming in all profitable ways possible. In this context, this article narrates the most efficient way to manage farm weeds without utilizing weedicides containing synthetic chemicals. By doing collection, processing and value-addition of the farm weeds, farmers can generate secondary source of income which will empower the small farmers to initiate small businesses using Ayurveda and also generate significant employment for the rural youth.

AYURVEDA is an ancient system of medicine that originated in India over 5000 years ago. Ayurveda has its foundations laid by the ancient schools of Hindu Philosophical teachings named *Vaisheshika* and the school of logic named as *Nyaya*. It is also related to the manifestation framework, well-known as *Samkhya*, and it was established in the same period when schools of *Nyaya* and *Vaisheshika* flourished. It uses a holistic approach to treat various health conditions by balancing the body, mind, and spirit.

In Ayurveda, many farm weeds are used as medicinal plants due to their therapeutic properties. Farm weeds are usually considered a nuisance and are often removed from crops to ensure that they do not affect their yield. However, what many people do not know is that some of these farm weeds possess medicinal properties and have been used for centuries to treat a variety of ailments. Farm weeds used in ayurveda can be a cost-effective and sustainable source of medicinal plants. These weeds are often found growing on farms and in wild which are easily accessible, making them a convenient and affordable source of medicine.

Gujarat, the westernmost state of India, is home to a rich diversity of flora and fauna. Among the plant species found in the region, there are many farm weeds that have long been used for their medicinal properties. These weeds offer a natural alternative to traditional medicine and are worth considering for their potential health benefits.

Economic advantage of the farm weeds involve so many variables including availability of the diversity, ayurvedic importance of the plant, availability of the active compounds and demand of the market. In India, states like Gujarat, Madhya Pradesh and Maharashtra are actively engaged in the interstate trade of farm weeds. For example, Chicory is exported to over 47 countries. In the year 2020-2021 (April-November), India has exported Chicory worth of USD 6.56 million.

Complete process of utilizing farm weeds and its benefits

The whole process involves following steps:

Collection of weeds: Farm weeds are to be collected manually. This step is labour intensive and requires labourers to collect weeds. All the weeds are cut from the base or uprooted and taken separately to the open space.

Processing:

- **Sorting of weeds:** Weeds are then sorted and kept separately at small distances from each other to avoid mixture.
- **Drying:** All the sorted weeds are then spread on the floor under the shade condition for natural drying. This is done carefully as weeds tend to dry earlier than plants and over-drying could lead to deterioration of the quality. The samples should be dried from all the sides carefully.
- **Storage:** The dried weed materials should be filled up in the gunny bags and kept away in the proper storage facility like clean and rodents free godowns to avoid quality deterioration.

Value addition: This is an optional step for small and marginal farmers as it involves series of processes to make the dried material ready to sell in the market at an attractive price. After drying the weed samples, they are then converted to the powder form for the packaging and distribution. Following steps are involved in this process.

- **Grinding:** Dried samples are ground by using mortar and pestle or other automated machineries depending upon the availability. First course grinding of the samples is done followed by fine powder preparation. To keep the quality of the material intact, it is important to avoid over-heating of the samples.
- **Packaging:** Fine ayurvedic powder of the weeds are then filled in the plastic bags of different sizes and sealed properly. The product is then ready for the sale.

Weeds as a medicinal plant



Punarnava



Puncture Vine



Nut Grass



Indian Pennywort



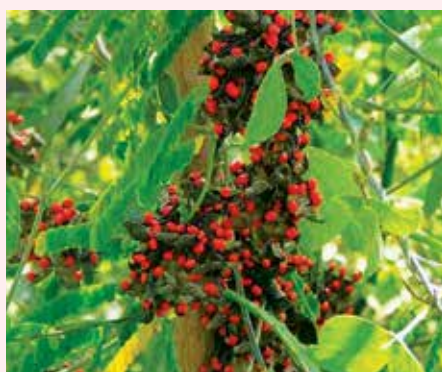
Bhringraj



Bhumi Amla



Ardusa



Rosary Pea



Brahmi



Shankpushpi



Clitoria



Chicory

Selling: Selling of medicinal products in Gujarat is a little bit tricky as the stable market for buying and selling medicinal products is developing at its own pace. So, farmers have to be patient and vigilant about the market demands in order to select and produce medicinal

products. Farmers have to study nearby markets for the availability of better prices in order to avoid the losses due to transportation to distant places.

- Farmers or a group of farmers, can also go for exporting the materials by contacting local exporters

and agencies. Also, now-a-days farmers can contact directly to the buyers from other countries via internet. Exporting the materials is a tedious process but involves huge profits if the buyer agrees to buy the whole available quantity. For this, farmers have to be ready for thorough quality inspections and paperwork.

- In this context, Medicinal and Aromatic Plants Research Station, AAU, Anand is making continuous and promising efforts to encourage the farmers by helping them sell their produce at beneficial rates by organizing farmers training programmes and buyer seller meets.

Benefits of preparing Ayurveda medicines from farm weeds

There are numerous benefits involved in the process of making Ayurveda medicines out of farm weeds. Major benefits are summarised below.

- **Organic way of cultivation:** Farm weeds are mostly removed using weedicides which adds up to the chemical pollution of the farm soil which can also affect mainstream crops in one way or another. Collecting weeds manually decreases usage of chemical weedicides which results in the decrease of chemical hazards done to the precious soil and food chain.
- **Cost effective:** Farm weeds are generally removed by using weedicides or manually using labourers. Removing weeds from farm involves many costs like buying sprayers, chemical weedicides, labour costs, etc. By using weeds as medicinal source, farmers can cut these costs to half as there is no use of weedicides. This reduces burden on the pockets of farmers.
- **Extra source of income:** Farmers can sell weed plant products to local buyers or pharmacies and generate extra income. Farmers can also process the weeds and start selling locally. This will generate significant income which will aid to farmers mainstream cultivation. Some weeds like *Shankhavali* and *Punarnava* are high in demand and draw more money in the market.
- **Less labour intensive:** Farm weeds grow out on their own. No one has to buy seeds and sow them to grow. This means, it is going to grow continuously on its own. So, farmers simply have to collect the weeds and process them before selling, which involve less labour compared to other crop cultivation.
- **Way to entrepreneurship:** Young and enthusiastic people of farming community can go further by establishing small processing units and produce organic Ayurvedic products which can be exported to other countries as well. This is fairly possible for the farmers having large land holdings or group of farmers coming together for the same. Once the setup is established, it can go a long and profitable way.
- **Aid to the economy:** Countries economic welfare mainly depends upon the exports and exporting locally prepared organic ayurveda medicines can boost the economy of the state and nation.
- **Lesser burden to growing economy:** Managing weeds can incur great load on the economy on larger

scale and holds huge burden on the governments to import certain heavy metals, chemicals and technologies to produce weedicides. This scenario could be changed by using weeds for Ayurveda medicines.

- **Lesser dependency on Allopathic drugs:** Local availability of high quality-organic Ayurvedic products and marketing will lead to decline in the usage of allopathic medicines.
- **Increase in awareness and knowledge:** The whole process involves basic identification skills and knowledge of collecting weeds and their uses as Ayurveda medicines. This will encourage the farmers to gain knowledge by reading related materials or attending training programmes.

Medicinal properties of our farm weeds are a testament to the power of nature which self-promotes the importance of preserving our natural resources. Brief information regarding some farm weeds of Gujarat and their medicinal uses is provided here for educational purpose.

Punarnava: This weed, in Gujarat, is commonly known as *Satodi* (*Punarnava-Boerhavia diffusa*) which is a medicinal herb commonly used in traditional Ayurvedic system of medicine. It is native to India and has been used for thousands of years to treat a variety of health conditions. Active constituents of this weed plant are boerhavic acid, punarnavine, potassium nitrate, tannins and phlobaphenes. Mostly all plant parts (leaf, stem, root, fruit and bark) are used in the preparation of medications like aasav, tablets and powder. It is well recognized that the plant has the most beneficial medicinal properties like anti-inflammatory and diuretic and also improves liver, respiratory, digestion and kidney health.

Puncture vine: In Gujarat, it is well known as *Gokhru* or *Gokshur* (*Tribulus terrestris*), is a weed plant commonly used in traditional medicine. It is native to warm temperate and tropical regions, including parts of Asia, Africa, and Europe. The major active constituents like alkaloids, phytosterols, triterpenoids, flavonoids, saponins, tannins, aromatic oil, resins, glycosides and carbohydrates are present in different parts of the plant. It is used and is available in the forms of tablets and powder and aromatic oil which is very famous in abhyanga therapy. Health benefits of puncture vine include boosting of testosterone levels, improving cardiovascular health, enhancing fertility, supporting liver function, anti-inflammatory properties and improving cognitive function.

Nutgrass: *Cyperus rotundus* commonly known as *Chidho* in Gujarat, is a perennial herb that has been used in traditional medicine for centuries. It is native to Africa, Asia, and the Mediterranean, but can now be found worldwide. The whole plant (upper portion and root nodules) is used for volatile oil extraction which is very effective as therapeutic oil for pain relief and even in powder form it is useful as a digestive aid, anti-inflammatory, diuretic, antimicrobial and an antioxidant.

Indian pennywort: This plant commonly known as *Gotu kola*, botanically *Centella asiatica*, is herbaceous plant commonly found in Asia, Africa, and South America. It has been used for centuries in traditional medicine to treat a

variety of diseases. The active constituents are pentacyclic triterpenes, mainly asiaticoside, madecassoside, asiatic and madecassic acids. The leaves and stem are used in the preparation of decoction, tablets and powder. Medicinal properties of this potent weed include cognitive function, wound healing, anti-inflammatory, antioxidant, skin health, venous insufficiency and digestive aid.

Bhringraj: It is also known as *Eclipta alba*, a herbaceous plant commonly found in India, China, and Southeast Asia. It has been used for centuries in traditional medicine to treat a variety of ailments. Ecliptine is main active constituent and whole panchang (leaf, stem, root, fruit, bark) is medicinally valuable. Hair oil is a very famous product of this weed and powder prepared from this plant is also available in market. It has been recognized beneficial for hair health, liver support, anti-inflammatory, digestive aid, immune system support, skin health and anti-aging.

Bhumi Amla: Scientifically known as *Phyllanthus niruri*, this is a small herbaceous plant that is widely distributed in tropical and subtropical regions around the world. It is commonly found in India, Southeast Asia, and the Amazon rainforest. The plant typically grows up to 50 cm in height and has small green leaves. It produces small, round, yellowish-green fruits. The entire plant, including the leaves, stems, roots, and fruits, is used for medicinal purposes. Leaves and stem are rich source of lignans, flavonoids, alkaloids, and tannins. The plants have the vital medicinal properties such as antiviral, antioxidant, diuretic properties, anti-inflammatory, antidiabetic, anti-urolithiatic and is also good for liver.

Ardusa: Scientifically known as *Adhatoda vasica*, this medicinal plant holds significant importance in traditional systems of medicine, particularly in Ayurveda. It is native to the Indian subcontinent and can be found in various parts of Southeast Asia. It has large, lance-shaped leaves that are deep green and smooth. The flowers of *Adhatoda vasica* are white or purple in colour and have a tubular shape. Active constituents present in this plant are vasicine, vasicinone, vasicol and adhatodine. Leaves are mainly used as medication for the preparation of syrup, decoction, tablets and powder which have been proved effective in respiratory disorders, bronchial asthma, cough and cold, anti-inflammatory and analgesic, antimicrobial activity and skin disorders.

Rosary pea (scientifically known as *Abrus precatorius*): It is a flowering plant native to tropical regions of Africa, Asia, and Australia. It is commonly found in countries such as India, Thailand and the Philippines. In Gujarat, it is commonly known as *Chanothi*. While the rosary pea is aesthetically appealing, it is important to note that it is highly toxic. The seeds of the rosary pea contain a potent toxin called abrin, which is considered one of the most poisonous plant toxins. Leaves are used in the preparation of paste and decoction to be used in the treatments of mouth ulcers, wound healing and skin disorders.

Brahmi: It is also known as *Bacopa monnieri*, is a herbaceous plant commonly found in India and Southeast Asia. It has been used for centuries in traditional medicine to treat a variety of diseases. This weed contains important

active constituents such as bacoside-A and bacoside-B. Mainly leaves and stems are used in the preparation of decoction, tablets and powder. Vast medicinal properties of this weed include improving the cognitive function, anti-inflammatory, anti-anxiety, skin health, digestive aid, immune system support and cardiovascular health.

Shankhpushpi: It is also known as *Convolvulus pluricaulis*, is a herbaceous plant commonly found in India and Southeast Asia. It has been used for centuries in traditional medicine to treat a variety of ailments. Plant has major active compounds like scopoletin, alkaloids, flavanoids, and coumarins and its main economic part is whole panchang (leaf, stem, root, fruit, bark). It is used in the raw form as decoction and is available in the form of tablets and powder in the market. Like Brahmi, it is also reported to have the properties of anti-inflammatory and anti-anxiety which exalts the cognitive function and also improves sleep, cardiovascular, respiratory and skin health.

Clitoria: *Clitoria ternatea* is a nutritious plant that has been traditionally used for medicinal purposes. It is a climbing vine with bright blue flowers. The plant has pinnate leaves and produces pods containing seeds. It is known for its vibrant blue petals, which are often used as a natural dye or as an ingredient in herbal teas. Active constituents of this weed include flavonoids, anthocyanins, alkaloids, triterpenoids and peptides. Flower, leaves and dried seeds of this weed are medicinally valuable and it works amazing if taken in the forms of decoction and powder which is beneficial to human health in various ways such as antioxidant and anti-inflammatory, memory enhancement, stress relief and anti-anxiety, antidiabetic properties, antimicrobial and antifungal.

Chicory (*Cichorium intybus*): It is a plant commonly found in Europe, Asia, and North America. Its roots and leaves have been used for centuries in traditional medicine to treat a variety of diseases. Active constituents contained in this weed are inulin, coumarins, tannins, monomeric flavonoids, and sesquiterpene lactones. Medicinally important parts of this weed are flowers, seeds and roots out of which syrups and powder are prepared. Health benefits of this weed include digestive aid, anti-inflammatory, blood sugar control, liver health, anti-cancer, respiratory health and skin health.

SUMMARY

Considering all the above narrated facts and information regarding the benefits and importance of farm weeds, it can be safely said that, while managing weeds in traditional ways is laborious and cost bearing process, cultivating and using weeds is the most organic way which will lead to an improved farm management and one step further towards the upliftment of farmers income and prosperity.

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