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CULTIVATION OF *OCIMUM SANCTUM* L. (TULSI) A SUBSTITUTE SOURCE OF LIVELIHOOD FOR RURAL WOMEN FARMERS

Y.Chandrakala*

Jayoti Vidyapeeth Women's University, Jaipur, Rajasthan

*Corresponding authors Email address – chandrakala_rie@rediffmail.com

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Abstract

The possibility of Tulsi (*Ocimum sanctum*) as an alternative crop and means of livelihood particularly for the rural women farmers. Tulsi is much demand for its medicinal and aromatic properties, particularly in ayurveda. An attempt can be made to explore alternative livelihoods through tulsi cultivation and value chain development. Tulsi farming not only provide marginal women farmers a sustainable additional livelihood option but also an opportunity where they will be able for sustainably generate income from unirrigated, uncultivated land.

Keywords: *Ocimum sanctum*, Optional additional livelihood; Tulsi, Fallow land, Food industry and Medicinal plant.

Introduction:

Tulsi, is renowned for its religious and spiritual sanctity, as well as for its important role in the traditional Ayurvedic and Unani system of holistic health and herbal medicine of the East [1]. It is mentioned by Charaka in the Charaka Samhita; an Ayurvedic text. Tulsi is a popular home medicine for a number of ailments. The different parts of the plant are traditionally used in Siddha and Ayurveda system of medicine for prevention and cure of many illnesses like common cold, colic pain, liver disorders, flatulence, asthma, headache, cough, flu, earache, bronchitis, diarrhoea, fever, sore throat, malaria fever, stimulant, aromatic and antipyretic, fatigue, skin diseases, an antidote for snake bite and scorpion sting, migraine, insomnia, arthritis, digestive disorders, night

blindness, influenza etc. The leaves are good for nerves and to sharpen the memory. Higher plants have played key roles in the lives of peoples providing products for both food and medicine. Tulsi plants have gained importance recently not only as herbal medicines, but also as natural ingredients for the cosmetic industry. Plants have been used by men from prehistoric times to get rid of suffering & curing ailments. The therapeutic uses of tulsi plant are safe & economical & effective as their ease of availability ^[3, 4].

Health benefits of tulsi

The leaves are excellent source for nerves and therefore sharpen the memory. In traditional system of medicine, plants are used in successful management of a variety of disease conditions like bronchial asthma, chronic fever, cold cough, malaria, diarrhea, arthritis, emetic syndrome, skin diseases, insect bite etc and in the treatment of gastric, hepatic, cardiovascular and immunological disorder [6]. Tulsi is commonly found near temples, home and worshiped daily by Hindus. Chewing of tulsi leaves curing ulcer and infections of mouth; it is a unique plant which has made important contribution to the field of science from ancient to modern research due to large number of medicinal properties.

The main utility of basil seeds is for propagation. The seed production is a small, specialized area of basil cultivation, which has great importance in the main production areas and also in the international seed market.[8].The main fatty acids of basil seed oil are linolenic (43-64%), linoleic (17-31%), oleic (8-13%) and palmitic acid (6-11%). Basil oil, in particular the camphor containing oil, has antibacterial properties.

Seeds are considered to be cold, while alleviating kapha and vata, it aggravates pitta. It has a wide range of action on the human body chiefly as a cough alleviator, sweat- inducer and mitigator of indigestion and anorexia. Tulsi is considered as adaptogen, balance different process in the body, hence useful for adapting stress. Marked by its strong aroma and astringent taste, it is regarded in Ayurveda as a kind of ‘elixir of life’, hence believed to promote longevity. Tulsi extracts are used in Ayurveda remedies for inflammation, heart disease, various forms of poisoning and malaria.

Traditionally, *Ocimum sanctum* is in use, as herbal tea, dried power or fresh leaf. For centuries, the dried leaves of Tulsi have been mixed with stored grains to repel insects. [7].Ethnobotanical surveys report the traditional utilization of basil as a veterinary medicinal plant as well [9].The flowers with different fragrance and colour (white, pink, violet) are used together with

summer vegetables, cheese, fish, butter, oils etc. the flower of *Ocimum sanctum* are used for religious with summer vegetables, cheese, fish, oils etc. the flowers are also used for religious purposes. The essential oil and oleoresin of basil are extensively used in the food industry, including confectionery, baked good meat products and liqueurs. Basil oil is used in perfumes, soaps, shampoo and dental products. In the perfumery basil oil has a great importance and used as a fragrance ingredient in perfumes, soaps, hair dressings, dental creams and mouth washes. The fresh herb is considered by some as a source of vitamin C. [10].

Alcoholic Extracts of basil is widely used as a medicinal herb in the Far East, especially in Chinese herbal around A.D.1060 and has since been used in China for spasms of the stomach and kidney ailments, among others. It is especially recommended for use before and after parturition to promote blood circulation and healing wounds.

The whole herb is also used to treat snake bite and insect bites.[10]. Several medicinal properties have been attributed to *Ocimum sanctum* L.[11]. All the parts of the tulsi plant are known to possess therapeutic potentials and have been used by, traditional medical practitioners, as expectorant, analgesic, anticancer, antiasthmatic, antistress agents.[12-,13]. Tulsi has been found to be utmost effective in various effective in various types of animal models.

Ocimum sanctum shortens the course illness, clinical symptoms and biochemical parameters in patients suffering from viral hepatitis. Ophthalmic preparations containing leaf juice of *Ocimum sanctum* beside triphala is used in Ayurveda, recommended for glaucoma, cataract, chronic conjunctivitis and other painful eye diseases.

The juice of fresh leaves is also given to patients to treat chronic fever, dysentery, hemorrhage and dyspepsia. A decoction of Tulsi leaves is popular remedy for cold. Tulsi leaves also prevent emesis and has been as anti helminthic[14]. Tulsi has inflammatory properties, external application help to reduce swelling and pain. Tulsi cures in many skin disorders. It's effective in skin rashes, insect bites, itching, ring worm infection and leucoderma. Fresh juice of Tulsi leaves used in nasya karma for treatment of headache and diseases of head and neck. Tulsi leaves act as nervine tonic, reduce acne, pimples and scars it's valuable in indigestion, internal parasites and constipation [15].

Value added products: Panch Tulsi oil, Tulsi Ginger, Tulsi Powder, Tulsi Tea and Tulsi Capsule.

Economics ^[16]

Expenditure per ha. - Rs. 80,000/-

Return per ha. – Rs 300,000/-

Net income – Rs 230,000/-

Cultivation ^[17]

Nursery raising (Mid February) -200 - 300 g seeds / ha are mixed with sand and sown in raised nursery beds in lines of 10 cm apart to a depth of 2 cm.

Land preparation (February - March) - 2-3 deep ploughing and harrowing.

Manure and fertilizer (February-March)- Application of FYM 10 t/ha and basal dose of fertilizers i.e. $\frac{1}{2}$ N and full P_2O_5 and K_2O . (The recommended dose of fertilizer is 120 kg N, 60 kg each of P_2O_5 and K_2O /ha.

Transplantation (April) - Transplant 6-8 weeks old healthy seedlings having 4-5 leaves at a spacing of 40-50 × 30-50 cm.

Irrigation (April) - One irrigation immediately after transplanting and there after 3 irrigations per month during summer months.

Intercultural operations (May-June) -First weeding at one month after transplanting, Second weeding, hoeing and earthing up operations at two month after transplanting.

First harvest (July – August)- First harvest should be done at 90-95 days after transplantation when the plants are at full bloom stage by cutting the clumps at 15-20 cm above ground level.

Irrigation and fertilizer-July – August-First top dressing of 30 kg N and irrigation should be given immediately after I harvest.

Second harvest (September – October)- Harvest the plants at 65-75 days after first harvesting by cutting the clumps at 15-20 cm from the ground level.

Irrigation and fertilizer application (September – October) -Second top dressing of 30 kg N and irrigation should be given immediately after II harvest.

Third harvest (November – December) - Harvest the plants at 65-75 days of second harvesting by cutting the clumps at 15-20 cm from the ground level.

Conclusion: Tulsi, traditional Ayurvedic and Unani system used for a number of ailments. like common cold, colic pain, liver disorders, flatulence, asthma, headache, cough, flu, earache, bronchitis, diarrhoea, fever, sore throat, malaria fever, stimulant, aromatic and antipyretic, fatigue, skin diseases, an antidote for snake bite and scorpion sting, migraine, insomnia, arthritis, digestive disorders, night blindness, influenza diarrhea, arthritis, emetic syndrome, skin diseases, insect bite etc and in the treatment of gastric, hepatic, cardiovascular and immunological disorder etc. The leaves are good for nerves and to sharpen the memory. Medicinal plants have gained importance recently not only as herbal medicines, but also as natural ingredients for the cosmetic industry and food industry, Basil oil is used in perfumes, soaps, shampoo and dental products..Health benefits of tulsi is a unique, plant which has made important contribution to the field of science from ancient to modern research due to large number of medicinal properties. Hence Traditional, pharmacological and food industry have high utilization of tulsi plant for preparation of medicine and food and cosmetic products which leading to exploiting the tulsi plant, from nature therefore keeping in view there is a need of cultivation of tulsi plant which not only provide sufficient supply of product but also give scope for rural womens to generate livelihood from uncultivated land .

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