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Colocasia esculanta Linn : Cultivation in Dabhara block in Janjgir – Champa district, Chhattisgarh in central India

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Abstract
Colocasia esculanta Linn. is an annual herbaceous plant with small corms in side of the soil. All the plant parts are used as vegetable as well as medicinal purpose among the rural peoples. It is also a source of economic increment to the farmers. The study based on the assessing the cultivation of the *Colocasia esculanta* Linn. in Janjgir – Champa district of central part of Chhattisgarh state. The plant is also referred as a commercial crop. Many flavonoides and steroids have been isolated from *Colocasia esculanta* Linn. The plant is grown in India for especially its corm, leaves etc. India is marked as a center of origin of this plant. Plant produces more corms in sandy-black soil but capable to grow in all type of the soil, so it is cultivated over the state. During cultivation Well soil preparation, fertilizers, weed, disease etc. management is required. Out of them well water discharge from cultivated field play a key role for successful growth and development of the plant.The present paper focused on the cultivation and use of the *Colocasia esculanta* Linn in the Study area.

Keywords: *Colocasia esculanta* Linn., Corm, Cultivation, Vegetable.

INTRODUCTION

Colocasia esculanta Linn. is also known as Taro, Arbi, Kachalu etc. in the Chhattisgarh state. Popularly it is referred as kuchai in the study area. Traditional system of medicine are much important than others for health care of the peoples. Ayurveda, Siddha, Unani, Yoga, Naturopathy and homoeopathy are six medicine systems in India. (Prasad, 2002).

As it is well known fact that many valuable products have been derived from plant species. The uses of natural products are increasing day by day over the country due to their less side effect and easily availability. To overcome of the above reason, over-exploitation of natural resources also increasing and leading the species loss from nature. So, proper cultivation and utilization plays a remarkable support to maintain the existence of the plant species in the nature. Pharmacological studies on leaf of *Colocasia esculanta* Linn. was recorded by Kalariya et al (2009). A Review on Potential utility of *Colocasia esculanta* Linn. was studied by PE, R. S. de la (1983). Whereas Antiinflammatory activity of leaf of *Colocasia esculanta* Linn. was observed by Saha et al (2007).

BOTANICAL DETAILS OF THE STUDIED PLANT

Colocasia esculanta Linn is a stem less, annual, herbaceous tropical plant. Mode of propagation of the plant is by underground corms. The height of the plant is around 02 meters. The plant belonging to the family Araceae also known as arum family. The leaves are simple, large, green, margin wave, arrowhead shaped, and waxy coat present on dorsal surface of the leaf. Petiole is long and spongy supporting the large leaf. The plant bears short corm (underground modified stem). The corm is store house of food materials and also remarkable for producing new plants for further cultivation and is identified by the presence of node and internodes. Stem tubers known as cormels present around the corm producing new daughter corms. The root system is fibrous type. Edible part of the plant as vegetable is Corm, Petiole and leaf.

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THE STUDY AREA

The study area was Dabhara block in Janjgir – Champa district (The heart of Chhattisgarh) in central part of the Chhattisgarh state in India. The area is marked as plain area with fertile soil supporting better cultivation of the varied crops.

The district is surrounded by Raigarh district in east, west by Bilaspur, north by Korba, Bilaspur and South by Raipur, Raigarh district. It located by Longitude 21.6 degrees to 22.4 degree towards north and latitude 82.3 degree to 83.2 degree towards east. Height from sea level 294.4 Meter. The climate of the district is moist-warm with Average Rainfall - 1157.1 mm and temperature range 08.0 to 49 degree Centigrade.

Colocasia esculanta Linn Cultivation : conservation and economic growth.

Arbi (*Colocasia esculanta* Linn) is regularly cultivated in the area for use as a vegetable as well as for economic growth of the farmers. It has a better demand in the local market which helps for cultivation per year. This plant is cultivated once time in a year. Plant size, corm size etc. are depending on soil quality, water facility etc. Corm, Leaf, Petiole are freshly used as vegetable among local

peoples whereas petiole and leaves are also made dry for further use. As the plant is grown per year by the local peoples leads to conserve the plant for further utilization.

NURSERY PREPATION

Small buds of the corms were separated and collected in bulk. Light warm water is spread and covered with cotton cloths for fast ignition of the new buds and roots. These are developed in 07 to 10 Days. During this process proper care is also required. After successful nursery development, the plantlets are ready for cultivation in the field.

CULTIVATION TECHNIQUE

- **Selection and preparation of the field** – It is first step for cultivation, Proper selection of the field is a prime need for better cultivation. Warm moist climate is suitable for better production of the plant. There are many factors need to be mark during selection of the field. Soil quality (Suitable pH range 5.5 to 7.0), water facilities, light etc are basic need for the plant. The field should be well ploughed and weed should be removed.

- **Selection and preparation of the Plant** – Plantlets which will be grown in the selected field required to prepare before cultivation. Disease free and healthy individuals are selected from bulk population of the plantlets and are used for further cultivation.

- **Planting technique** – Selected plantlets are grown in the prepared field by maintaining distance from plant to plant and bed to bed. Effect on spacing of *Colocasia esculanta* Linn during cultivation noticed by Sivan (1977). Small corms with little buds are grown in six to ten inches deep in soil by maintaining distance plant to plant around five to eight inches. The distance between two beds should be around ten to fifteen inches. Improvement of cultivation method of *Colocasia esculanta* Linn. was marked by Gooding et al (1961).

- **Management**

  - **Weed** – Before and after cultivation weeds should be removed without damage of the plant. Weed control study made for *Colocasia esculanta* Linn. by Plucknett (1982).

  - **Nutrient** – Bio-fertilizers and Fertilizers source of NPK etc. should be provided as per need of the plant. Nitrogen effect on growth and yield of *Colocasia esculanta* Linn. was recorded by PE, R. S. de la and Plucknett (1972). Study on fertilizer and weed control related to *Colocasia esculanta* Linn. cultivation was made by Berwick et al (1972).

  - **Disease** – Leaf wilting, Blight etc. are dangerous disease of this plant should be controlled by using suitable fungicides and by removing excess water from the cultivated field. Diseases on Tropical vegetables was studied by Burton (1970).

  - Water – Water should be supplied as per need of the plant and well water drainage is required to avoid water logging.

- **Plant Protection** – The cultivated plant should be protected from environmental and biological factors to gain better and maximum products.

HARVESTING

The plant is become ready for harvesting in September – October indicating by yellowing of the leaves. During harvesting complete water from the field should be removed and a little moisture level are maintained. Complete underground corms are removed safely and collected in bulk. Yield of the crop depends on local environmental condition, Soil quality, water etc. Effect on *Colocasia esculanta* Linn. yield studied by Kagbo et al (1982).

STORAGE

Harvested corms which further need to dry in sunlight to remove moisture. After than the corms stored in dry and shady places by spreading them.

CONCLUSION

On the basis of above findings, finally it is concluded that the plant *Colocasia esculanta* Linn. is important for vegetables and a source of economic growth of rural peoples. Public interest, market demand, better environment for cultivation etc. are main factors playing key role for regular cultivation of this plant in the area. Continuous cultivation provides a better platform for its conservation for future generation.

REFERENCES

[1] Berwick, J., Biutisuva, F., Ratuvuki, L. V., Kamilo, A. V. and Raghwaiya. 1972. Dalo (*Colocasia esculenta*) fertilizer, variety, weed control, spacing and palatability trials. *Fiji Agricultural Journal,* 34, 51-57.

[2] Burton, C. L. 1970. Diseases of tropical vegetables on the Chicago market. *Tropical Agriculture, Trinidad,* 47, 303-313.

[3] Gooding, H. J. and Campbell, J. S. 1961. The improvement of cultivation methods in dasheen and eddoe (*Colocasia esculenta*) growing in Trinidad. Proceedings of the Caribbean Region: *American Horticultural Society*, 5, 6-20.

[4] Kagbo, R. B., Plucknett, D. L. and Sanford, W. G. 1982. Yield and related components of flooded taro (*Colocasia esculenta*) as affected by land preparation, planting density and planting depth. Proceedings of the 5th International Symposium on Tropical Root and Tuber Crops (Philippines, 1979), pp. 629-635. Los Banos, Laguna, Philippines: Philippine Council for Agriculture and Resources Research, 720 PP.

[5] Kalariya M. V, Rakesh P. P, Parmar S. K, Sheth N. R. 2009. Pharmaconostic evaluation of *Colocasia esculenta* leaves: Dissertation conducted at Dept. of Pharmaceutical Sciences, Saurashtra Uni., Rajkot, India.

[6] PE, R. S. de la and Plucknett, D. L. 1972. Effects of nitrogen fertilisation on the growth, composition and yield of upland and lowland taro (*Colocasia esculenta*). *Experimental Agriculture*, 8, 187-194.

[7] PE, R. S. de la. 1983. Agronomy. Taro, a review of Colocasia esculenta and its potentials (Wang, Jaw-Kai, ed.), pp. 167-179. Honolulu, Hawaii: University of Hawaii Press, 400 pp.

[8] Plucknett, D. L. 1982. Weed control in taro Colocasia sp. Taro cultivation in the South Pacific: South Pacific Commission Handbook, No. 22 (Lambert, M., ed.), pp. 32-43. Noumea, New Caledonia: South Pacific Commission, 144 pp.

[9] Prasad L. V. 2002. Indian System of Medicine and Homoeopathy Traditional Medicine in Asia. In: Chaudhury RR, Rafei UM, editors. New Delhi: WHO- Regional Office for South East Asia: pp. 283-286.

[10] Shah B .N, Nayak B. S, Bhatt S. P, Jalalpure S. S, Sheth A. K. 2007. The anti-inflammatory activity of the leaves of *Colocasia esculenta*. *Sau Pharm J ;* 15:3-4.

[11] Sivan, P. 1977. Effects of spacing in taro (*Colocasia esculenta*). Proceedings of the 3rd Symposium of the International Society for Tropical Root Crops (Nigeria, 1973) (Leakey, C. L. A., ed.), pp. 377-381. Ibadan, Nigeria: International Society for Tropical Root Crops in collaboration with the International Institute of Tropical Agriculture, 492 pp.