



THE JIGGAT (LITSEA CHINENSIS OR LITSEA GLUTONESA): AN UN-TAPPING VALUE CHAINS IN NORTHEAST INDIA

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Abstract:

The Jiggat (*Litsea chinensis* or *Litsea glutonesa*) is considered to be a Non-forest produce (NTFP). It has ample potential for commercial value in the industry, traditional medicine among tribal households and Ayurveda system of medicine. The present paper examined the value chains aspect of jiggat in the context of rural livelihoods promotion, cost benefits analysis and promotion of model plantation for steady supply chains management for developing the cluster based enterprise development. The majority dominance of the jiggat was observed around 45-350feets (ASL) in Northeast states. The high-quality adhesiveness and quantity of materials found among the trees grown in gentle slope of hills. Moreover, it found that jiggat can generate 10-12% additional income for a rural household income basket. A favorable policy is needed to reinforce the sector. Developing value chains will create a new opportunity for the different stakeholders to strengthen their position in horizontal and vertical nodes, promote cluster led enterprise development and environmental protection. The paper did not discuss much on morphological and phenological aspects of jiggat.

Key Words: Jiggat, Value Chains & Rural Economy.

Background:

The Jiggat (*Litsea chinensis* or *Litsea glutonesa*) is known with several names, in central India called as *Maida Ladkri*, in Assam and Meghalaya called as *Bagh Naula*, in Tripura known as *Chang Peechala*, *Mandai Awaal*, *Jeelseem* and *Basra Bukhui* (in Kokborok). *Litsea glutonesa* is an evergreen tree of medium size which grows to a height of about 20 to 30 feet. It belongs to family Lauraceae. In India, it is found mainly in North Eastern region. The leaves and the mucilage from the bark of the plant are utilized in the gum for poultice (Sunil Kumar et al., 2010). The bark of the tree is pale brown outside and reddish colored from inside, the leaves are 4-6 inch long and covered by the small hair-like structure, the flowers are small and yellow in color. The flowering took place in June-July, the fruits are small, round and black to purple in color, matured in September-October (Anon., 2017). The bark of *L. glutinosa* is the major source of adhesive material for incense sticks (Agarbatti) industry in India. The bark is dried thoroughly in the sun, pulverized in a grinder to obtain adhesive powder and sieved. Remnants of the bark on the sieve are added to the next consignment of bark for pulverization (A. K. Sinha and S. Deb, 2016). In Ayurveda Shastra, jiggat known as Medasaka, is a plant used for the treatment of cough, swelling, fracture, diarrhea and dryness of the skin. The bark of the tree contains laurotetanine, actinodaphnine, boldine, norboldine, sebiferine and the leaves contain flavonoid, naringerin, naringin and aempferol (Anon., 2017).

Socio-Economic Value:

Since the development and growth of human civilization, the community is using natural resources in an optimum and sustainable way to fulfill the basic needs. Jiggat (*Litsea chinensis* or *Litsea glutonesa*) is one of the naturally available plant resource found in gentle slopes, nearby the streamlets or on the bank of small rivers in different parts of India, predominantly in Northeast and central India. The plant is having socio-economic value and importance in incense sticks (commonly known as agarbatti) industry, mosquito coil making, briquette, pellet and numerous medicinal value in Ayurveda Shastra. The tribal community in Northeast region used jiggat as medicine by the traditional healers (called as Okra). The grind bark of the jiggat used as paste externally in bruises, sprains, rheumatic and gouty joints, extracted oil used for anti-helminthic activity against earthworms, tapeworms and prevent drying of skin. It used as a styptic dressing for wounds, treatment for diarrhea and bleeding piles. The leaf used for a treatment cough and also low backache.

Reason being, it observed that the majority of tribal households were planted 2-3 jiggat plants at homestead level similar to Tulasi (*Ocimum tenuiflorum*) as an immensely valuable resource and conserving the jiggat in natural forests. The economic importance of the jiggat could be found in the industrial sector. It has been used in incense sticks (Agarbatti) sector at large scale. The value of the industry is estimated at Rs. 4,000 crore along with a handsome growth rate of 10-12% per annum (TBM, 2011). The jiggat contains 20-25% net wet of the agarbatti, having natural adhesiveness and help to bind with bamboo sticks and smooth burning. Generally, the powdered bark of jiggat, used as an adhesive paste in incense stick making. The 'jiggat' acts as an adhesive to bend the charcoal with the sticks, it obtained from the bark of the tree and further processing used it in agarbatti (incense) industry (Jenner and Selim, 2008). The women rollers are vulnerable to

insufficient and poor quality supplies (e.g. containing charcoal that is not sufficiently well powdered or with the wrong proportions of jiggat) which takes longer to roll and may break off the rolled sticks (Motukuri, B. et al., 2011). Like Gaur gum, the jiggat bark contains the naturally process of viscosity and generates higher process temperatures and helps to burn the agarbatti, mosquito coil and dhuna. Low process viscosity, at higher process temperatures, can give better heat transfer, easier pumping and more accurate filling which lead to proper compaction of coil consequently better result of coil performance in Guar Gum(Rabi Shankar Mukherjee,2011).

The bamboo-based economic activities are part of the life in the Northeast states. It creates huge employment avenues for rural and urban youth in particular women. Bamboo is used in all walks of life both in rural as well as in urban areas (INBAR, 2003). The Northeast India is better known as ‘treasure house’ of bamboo resources. Next only China India has the richest bamboo genetic resources in 136 species, including 11 exotic species out of which 58 species belonging to 10 genera are found in the Northeastern region (NERBaM, 2005). The sustainable development of the local economy through utilization of bamboo over the next 15 years that would include: a double-digit economic growth of NER and an annual turnover of Rs. 8000 -10,000 crore, generation of millions of jobs in bamboo trade, enhancement of household income particularly among tribal and rural poor through value addition, sustained up-gradation of the needed skills of all those engaged in bamboo trade, global export network of value-added bamboo products, starting with neighboring countries and strong research and development mechanism that become fully functional to sustain the growth (Ibid). The new employment has been generated by the introduction of batti rolling. While previously only sticks were produced from bamboo in Tripura, the production of batti needs not only (a) the bamboo sticks, but also (b) charcoal and (c) jiggat. Further, charcoal and jiggat powders need to be combined and kneaded into a paste, and rolled on to the sticks. Thus, 11 additional employment opportunities have been created with the three new lines of employment/income generation. For every 1 job of stick-making, batti production created 1 new job of charcoal production, 3 for jiggat processing and 7 for batti rolling.(Rao, et al.,2009). The production of jiggat generates an income that is 53 percent greater than that from stick production and 38 percent over batti production (Ibid). Therefore, the jiggat is naturally having ample socio-economic value which generates livelihood and employment.

The jiggat could be planted on private land as commercial plantation and also homestead backyard plantation. The good quality plantation observed in Northeast region about 45-350 feet (ASL), The economic return (per hac.) on wet/raw bark INR 120000.00, dry bark INR 280000.00 and powdered bark INR334000.00 respectively (table-I). It has also been observed at the household level backyard and homestead plantation on average 2 to 3 jiggat tree average annual income INR 2000.00 to2500.00 as an additional source of income, it consists of 10-12% of income for a rural household for livelihood improvement.

Table 1: Cost benefits analysis per hac

S.No	Particular	Unit / Quantity	Amounts	Return on Different Level
1.	Land preparation	LS	20000.00	
2.	Cost of saplings @ INR 20.00	400 Nos of plant	8000.00	
3.	Weeding and Management upto 5 years	LS	40000.00	
4.	Sub-total:		68000.00	
5.	Harvesting bark (after 7years) 2 times/ per year @ INR 5.00	160000 /KG	800000.00	120000.00
6.	Dry bark(added value)75-80% weight loss @ INR 30.00 /per KG	32000/KG	960000.00	280000.00
7.	Cost on processing etc	LS	5000.00	
8	Powdering dry bark (30% wear & tear loss) @ INR60.00	22400/KG	134400.00	334000.00

Source of data: TRIBAC, 2017

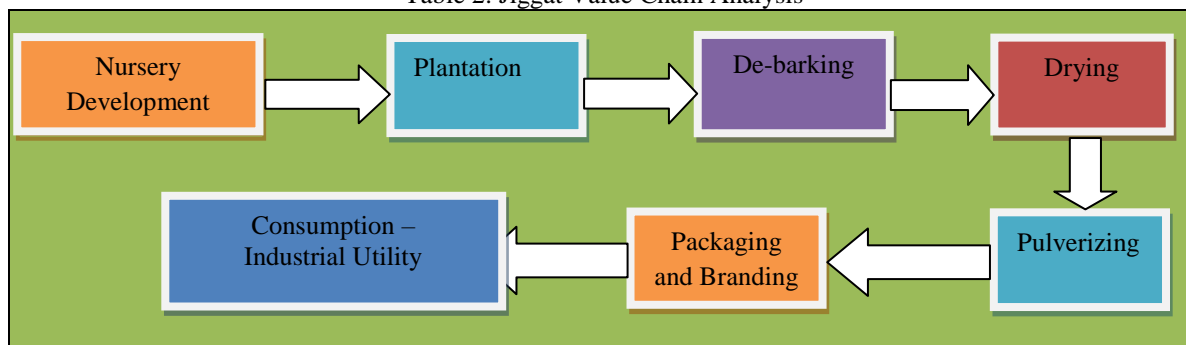
Value Chains Development:

The value chain analysis is well suited to understanding how small producers in rural areas can engage or improve their terms of engagement in existing trade system. A ‘value chain’ describes the full range of activities required to bring a product or service from conception, through different phases of production, delivery to final consumers and final disposal after use (Kaplinsky and Morris 2001). The practical value chain approach is to enhance the target group to play an active role in various horizontal and vertical nodes of the chains. The large-scale businesses activities help to improve the livelihoods of everyone involved in bamboo trade and business through value chain up-gradation, it integrates the small poor rural producers in mainline development (Arshad, Selim, 2015). It is the process of trading which allows small producers to access viable value chains or improves their position in existing value chains. It includes functional upgrading, process upgrading, product up-grading, inter-chain upgrading and upgrading of the business enabling environment. The jiggat value chains in Northeast region of India could have been designed and mapped in table-II. It has been clearly shown that jiggat nursery needs to develop for quality planting material (QPM), the

local small producers' group to be trained on nursery development, plantation management, and debarking process. De-barking is a critical issue for the survival of jiggat tree, the de-barking to be done three meters from the basal level to up to breast height for harvesting good quality of bark, 10-15 cm gap to be maintained to leave the bark for next debarking after six months till re-generate the earlier de-barked area. It will maintain the good health of the tree as scientific harvesting process. On the other hand complete debarking; the tree will die at the certain stage. Using dao is advisable for debarking.

The wet bark will be packed into gunny bag, carry to the primary processing centre for chipping and drying, and next stage for pulverizing and packaging to supply industry utility for consumption. In every stage/level notice should be given to away from water or rain, it will damage the bark adhesives.

Table 2: Jiggat Value Chain Analysis



Conclusion:

Definitely, jiggat (*Litsea chinensis* or *Litsea glutonosa*) is having ample potential to create rural livelihood and income opportunities. It is a valuable industrial raw material for incense sticks sector, mosquito repellent, bamboo briquette, pallet and medicinal value in Ayurveda Sasthra. The Northeast region of India is a hub for jiggat. A doable policy prescription from the Government will help to create an enabling environment to scale-up jiggat based business livelihoods and enterprises in the backward region of India including steady supply chain management for industries. Developing value chains in jiggat will give an opportunity to participate the small producers in markets.

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