

Short Communication

Notes on traditional method of solidified *Aloe vera* exudate (*musabhar*) preparation in Tamil Nadu

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Solidified exudate of *Aloe vera* (L.) Burm.f. (*musabhar*) is one of the important raw drugs of Indian traditional medical systems. In this communication, the traditional method of preparing *musabhar* in Tamil Nadu is documented by interviewing people who have been preparing *musabhar*. It has been prepared by concentrating the exudate of *A. vera* leaves in mud stoves. In the markets of Tamil Nadu, diverse grades of *musabhar* are available. Shrinking natural *A. vera* population, tedious traditional preparation methods, limited harvesting period and low returns are some of the major concerns that affect the sustainable availability of genuine *musabhar*. Hence, it is recommended to develop scientific protocols for the production and standardization of *musabhar*. Further, cultivation of *A. vera* might be promoted for the sustainable usage of this bio-resource and sufficient availability of genuine product.

Keywords: *Chenni nayagam, Kanyasara, Kariabolam, Raw drug, Traditional medicine*

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Aloe vera (L.) Burm.f. (Asphodelaceae) is one of the ancient medicinal herbs; its usage was even engraved on the clay tablets of Mesopotamia¹. Phylogenetic studies indicate that *A. vera* is native to the Arabian Peninsula²; it has been used in many traditional systems of medicine in countries like Egypt, India and China for thousands of years^{3,4}. It is one of the important medicinal plants of codified as well as non-codified traditional medical systems across India. Two major raw drugs are obtained from *A. vera*; a bitter, yellowish-red exudate from the cells beneath epidermis which is rich in anthroquinones and a clear mucilaginous gel from the cortex of the leaves. The solidified exudate of *A. vera* is traded as a black and

glassy mass in raw drug stores across India under the name of *Musabhar, Kariabolam, Chenni nayagam* or *Kanyasara*.

In *Ayurveda*, it is prescribed for the treatment of fever, gastric ailments, dysmenorrhea and liver diseases; it is one of the ingredients of many *Ayurvedic* formulations like *Rajahpravartini vati* and *Cukkumtippalyadi gutika*⁵. In *Siddha*, it is prescribed for inflammation, joint pain, stomach ache, jaundice and dysmenorrhea⁶; it is one of the major ingredients of *Mūcāmpara parṛu*⁷. In *Varmam* subsection of *Siddha* medicine, *musabhar* is used in the preparation of diverse formulations for treating array of musculoskeletal ailments⁸. In *Unani* medicine also it has been used to treat constipation, worm infestation, joint pain and gynaecological ailments; it is an ingredient of formulations like *Zimad-e-Jalinoos*⁹. In folk medicine, *musabhar* along with a starch powder is applied externally in contusions. This communication documents the traditional method of *musabhar* preparation in Tamil Nadu.

Methods

Few families in Virudhunagar, Dindigul and Salem districts are involved in preparing *musabhar*. Three such families were identified by snowball sampling method and six members from these families were interviewed. Prior informed consent was obtained from all the informants and the interviews were conducted in accordance with International Society of Ethnobiology code of ethics¹⁰. Field surveys were made between April, 2021 and July, 2022; it consisted of twenty field days. The interviews were unstructured and the informants were asked to describe the traditional method of *musabhar* preparation. The research team stayed with the informants and documented the *musabhar* preparation methods. Representative samples of *musabhar* were obtained, preserved in specimen jars and deposited in the herbarium of St Xavier's College (XCH 40453) for future reference.

Results and Discussion

Traditional method of collection and preparation

Production of *musabhar* by the informants solely depended on wild *A. vera* populations in few districts

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of South Tamil Nadu. Collection of *Aloe* exudate was usually carried out in the months of April – July. During these months the informants made temporary settlements near places where wild *A. vera* populations were found (Fig. 1a). *Aloe* exudate collection was finished before noon by stacking the cut leaves in a specially designed, rattan-made strainer (Fig. 1b,c); the exudate was then preserved in plastic cans. After obtaining sufficient quantity, the exudate was boiled on mud stoves (Fig. 1d); suspended particles and dusts were frequently removed with rattan-strainers. The exudate was concentrated rapidly over a strong fire till it got tar like consistency. It was spread on the ground, layered with ash for cooling; the concentrate was then broken into pieces and stored (Fig. 1e-g). Local resources like leaves of *Borassus flabellifer* L. and discarded dead wood of *Neltuma juliflora* (Sw.) Raf.,

available nearby were used as firewood for this process. It was observed that about 300 matured plants yielded seven litres of *Aloe* exudate which on processing gave one kilogram of *musabhar*. For one season, a family approximately produced 400 - 600 kg of *musabhar* depending upon the availability of *A. vera*. The final product was sold to the herbal *mandis* in Virudhunagar or Madurai in Tamil Nadu for ₹750 - 1,000 per kg.

Current market trends of *Musabhar*

Local market survey indicated that the cost of one kilogram of *musabhar* was around ₹1,500 - 2,000. In the markets of Tamil Nadu, diverse grades of *musabhar* were available. Despite its huge cost, the availability of genuine raw material was reported to be diminishing. According to the opinion of the



Fig. 1 — Stages of solidified *A. vera* exudate (*musabhar*) preparation, (a) Harvesting *A. vera* leaves from wild; (b) Staking *A. vera* leaves on rattan-strainers for collecting the exudate; (c) Collected *A. vera* exudate; (d) Boiling *A. vera* exudate on mud stove; (e) Checking the consistency of *A. vera* exudate; (f) Cooling *A. vera* exudate on the floor; (g) the final product, *Musabhar*

informants, some of the major reasons for the reduction in traditional *musabhar* preparation were shrinking natural *A. vera* population due to rapid urbanization, tedious traditional preparation methods, limited harvesting period and low returns. Application of strong fire to concentrate *A. vera* exudate might cause degradation of aloin¹¹. Further studies are needed to assess the market demand and quality of *musabhar* samples as well as the validity of traditional *musabhar* production methods.

Conclusion

Industrial production of spray dried *A. vera* gel has been widely done; to the best of our knowledge no modern method is adopted in the case of *musabhar*. Developing scientific methods for the production and standardization of *musabhar* might create some job opportunities to the village people and help catering market demand. Besides the scientific methods might also increase the yield of *musabhar* extraction from *A. vera*. Further, the cultivation of *A. vera* might be promoted for the sustainable usage of this bioresource and availability of genuine product.

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Conflict of Interest

The authors declare that they do not have any conflict of interest.

Author Contributions

PP, SM, and VC: methodology, field survey, drafting; SI and VC: Conceptualization, Supervision, Finalizing the draft.

Ethics Approval

Traditional knowledge has been documented in accordance with ISE code of ethics.

Prior Informed Consent

Prior Informed Consent was obtained before documenting the local knowledge from the informants.

Data Availability

Supporting data are available from the corresponding author upon reasonable request.

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