New Record: Ethnobotany of "Buah Tarasi" (*Cassia javanica* L.) in Sukabumi and Cianjur, West Java

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Abstract. The article aimed to record community knowledge regarding cultivating, utilizing, and conserving tarasi fruit (*Cassia javanica*) in Cianjur and Sukabumi Districts, West Java. The ethnobotanical interview method was used for 22 respondents from Cilaku village, Cianjur district, and Tegal Buleud village, Sukabumi district. Respondent criteria have or have owned a tarasi tree and used it. The interview consisted of 20 questions. The data were analyzed qualitatively and quantitatively using the Index of Cultural Significance (ICS). The results found that ecologically, tarasi fruit was grown by the community from seed (82%), in cultivation (68%), and planted in the yard (86%). Tarasi fruit is used, among others, for cooking seasoning (38%), firewood (42%), tools (8%), and digestive medicine (12%), but the highest ICS score is for cooking seasoning (10.89). The utilization of tarasi fruit in the form of dried pods is processed into a paste. The presence of live trees in only 36.4% still used for seasoning in only 9.1%, and there has yet to be an attempt to share knowledge. The conclusion is that tarasi fruit for vegetable shrimp paste must be developed so that it has an impact on conservation.

1 Introduction

Cassia javanica L. is a member of the family Fabaceae subfamily Caesalpinioideae. *Cassia javanica* L. is a polymorphic species of 7 subspecies [1]. So far, publications and notes regarding this species have rarely been written at the subspecies taxa level, including in ethnobotanical records. Heyne explained that *bobondelan* fruit (*Cassia javanica* L.) has a room divider in the fruit and bitter seeds and is used as a drinking medicine. Apart from that, the fruit pods resemble *Cassia fistula* L. pods but only contain yellow seeds and no pith overall, and the fruit is used as a laxative [2]. Apart from that, this species is used for house construction in Indonesia and West Africa [3]; a road shade plant with the name rainbow shower in Southern Florida, Puerto Rico, Cuba, Mexico, and across Central America [4], the seeds are used by the Muyu Tribe Soa Village, Merauke, Papua for hunting [5], the stems are

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used as offering posts or corner posts in the Dawan tribe of Timor [6], medicinal plants in Lookeu village, West Tasifeto Sub-district, Belu District [7], stem bark for the treatment of liver disease by *battra* (herbalists) of various ethnicities in Indonesia [8]. The fruit treats constipation, high blood pressure, and weak nerves [9].

The people in Tegal Buleud Sub-district, Sukabumi District, have known and used the *tarasi* fruit (*Cassia javanica* L). The people use the fruit of this plant as an ingredient for making chilli sauce, which is a substitute for shrimp paste, which is currently made from shrimp. However, Few people own and use trees. Economic reasons also encourage the decline of this tree because this type is not a commodity that can be bought and sold. The urgency of this research is very high, because *Cassia javanica* L. has quite large diversity, but records of its use (ethnobotany) still need to be made available. The aim of this study to record community knowledge regarding cultivating, utilizing, and conserving tarasi fruit (*Cassia javanica*) in Cianjur and Sukabumi Districts, West Java.

2 Material and method

This research was conducted from July to August 2023 in Tegal Buleud Sub-district, Sukabumi District, and Cilaku Sub-district, Cianjur District (Fig. 1). Identification of tarasi fruit was carried out at the BRIN Cibinong Botanical Collection/Herbarium. The research was conducted exploratively using an emic and ethical approach [10].

Fig. 1. Map of research locations for tarasi fruit (*Cassia javanica* L.) in Tegal Buleud Sub-district, Sukabumi District (1) and Cilaku Sub-district, Cianjur District (2)

The emic approach produces data on community knowledge in using tarasi fruit. Data was obtained through interviews with 22 respondents, with the criteria for respondents being to own or already own tarasi fruit trees and use tarasi fruit. The respondents were selected through purposive followed by snowball sampling [11]. Interviews used standardized interview techniques [12] with 23 questions (9 for ethnoecology-cultivation, 9 for ethnobotany based on the Index of Cultural Significance/ICS, and 5 for ethno-conservation). The respondent's identity data collected is in the form of name, address, age, gender, and latest education. Qualitative-descriptive analysis was carried out to process ethnoecological, ethnobotanical, and ethno-conservation data, as well as respondent identity data. Quantitative analysis was to reveal ethnobotanical data, especially using the Index of Cultural Significance (ICS) analysis [13].

$$ICS = \sum_{i=1}^{n}(q \times i \times e)ni \quad (1)$$

Information:

ICS : Index of Cultural Significance
i : Intensity value
q : Quality value
e : Exclusivity value

3 Result and discussion

3.1 Tarasi fruit and respondent profile

Tarasi fruit has been determined by the BRIN Cibinong Botanical Collection/Herbarium as *Cassia javanica* L., and researchers determined its infraspecies as subsp. *microcalyx* (H.S. Irwin & Barneby) K. Larsen. Tarasi fruit trees have a characteristic tree habitus, forming a "troll type" canopy; compound leaves, leaflets have fine red hairs, axillary inflorescences, racemose compound flowers are red-magenta, the fruit is a dry pod that does not break, and emits a foul odour (Fig. 2a-f)

Fig. 2. Morphology and utilization of Tarasi Fruit. (a) Tree habitus; scale bar: 1 m. (b) Sowing from seeds; scale bar: 3 cm. (c) Alternate pinnate leaves (interrupte pinnatus); scale bar: 10 cm. (d) Unbreak dried pods; scale bar: 4 cm. (e) Fine hairs on leaves and stems are red; scale bar: 2.5mm. (f) magenta compound inflorescence; scale bar: 1.5 cm. In making vegetable shrimp paste, the arillus part of the fruit is separated (g), then cooked into a paste (h). Tarasi fruit trees are used as road decoration plants (i) (Researcher Documentation 2023).

The number of respondents was small because the existence and use of tarasi fruit trees in the Sukabumi and Cianjur Districts were limited. A total of 22 respondents obtained had a profile with the gender category being dominated by females gender (68%), the age category being dominated by older people (54%), the education category being dominated

by junior high school (45.45%), and the employment category being dominated by domestic workers (59.09%). Most of the respondents were female because those most likely to be interviewed were housewives who were elderly and mature [14]. The opportunity for mothers to be respondents is essential because the interviews were conducted during working hours. Even though the number of respondents is small, finding respondents is relatively easy because one respondent and another are connected as colleagues, neighbours, or family. Family, neighbours, and colleagues are environments with great opportunities to obtain information and local knowledge about the use of resources in their surroundings [15].

3.2 Ethnoecology and cultivation of tarasi fruit

The method of cultivating tarasi fruit used by the community is not intensive. Most people plant tarasi fruit from seeds (81.82%), and only 4 out of 22 respondents (18.18%) said they did not plant tarasi fruit trees or wild. It can happen because this fruit can be spread by squirrels or fruit-eating mammals with the attractiveness of the fruit's strong aroma [16].

The community maintains tarasi fruit trees (68.18%) by weeding out weeds, pruning dead branches, and simple fertilization by providing dry leaves as compost. *Cassia javanica* L. is planted as a shade and ornamental tree along roads, parks, and gardens [3-4] (Fig. 2i). However, 7 out of 22 respondents (31.82%) let tarasi fruit trees grow without treatment and maintenance because they considered this species not to be an economically profitable agricultural commodity. The observed tarasi fruit tree was found not far from the teak tree (*Tectona grandis* Linn f.) because they have similar habitats and abiotic factors. The habitat of the tarasi fruit tree is the habitat of teak (*Tectona grandis* Linn f.), so in some literature, it is said that the existence of *Cassia javanica* L (tarasi fruit) is not far away and even exists among teak forests [17].

3.3 Ethnobotany of tarasi Fruit

People in Sukabumi and Cianjur District use tarasi fruit (*Cassia javanica* L.). Four types of uses for tarasi fruit trees have been recorded, including twigs used as firewood (42%), fruit used as a cooking spice in the form of a substitute for shrimp paste (38%), fruit used as a digestive medicine (12%), and the tree wood used as raw material for household utensils and agricultural equipment (8%). The great use as firewood of the twigs and stems of *Cassia javanica* L. is because this species has fast growth [4]. Even though the use of tarasi fruit is dominated as firewood, based on ICS analysis, the category of benefits of cooking spices is in the top position with a value of 10.89. Public knowledge regarding tarasi fruit (*Cassia javanica* L.) as a cooking spice has yet to be recorded in published scientific literature. Tarasi fruit is a black dry pod containing seeds covered with black arils, with a strong aroma like shrimp paste. The arils are separated from the seeds and skin, mixed with water and a little salt, and then cooked until they become a paste (Fig. 2g-h).

3.4 Ethno-conservation of tarasi fruit

Field observations left eight trees (36.4%), and it was predicted that there would be a reduction. Apart from that, many tarasi trees that were cut down in the last two years were found. This is made worse by only 2 out of 22 respondents (9.09%) who still actively use shrimp paste as a cooking spice. The remaining 20 people (90.9%) no longer use it for more practical reasons. People's increasingly practical lifestyles have led to a shift in the use of tarasi fruit because the substitute is easy to obtain, does not require making, and is relatively cheap. Community efforts to conserve tarasi fruit trees still need to be improved. No one is cultivating tarasi fruit, and no active efforts have been made to disseminate information about

its benefits. Research into the potential of tarasi fruit as a candidate for vegetable shrimp paste is an opportunity for future conservation and cultivation.

4 Conclusion

The research results found that ecologically, tarasi fruit is planted by the community starting from seeds, cultivated, and planted in the yard. Tarasi fruit is used as a cooking spice, firewood, digestive aid, and tools. Its use is dominated by firewood and cooking spices, but the highest ICS value is found in cooking spices. A new note on the ethnobotany of tarasi fruit (*Cassia javanica* L.) is the use of the fruit as a vegetable shrimp paste substitute for shrimp paste. Conservation carried out by the community needs to be improved, because few respondents know about tarasi fruit, only a few trees are found, and utilization is low.

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