

## EDIBLE PLANTS AND POISONOUS PLANTS IN MICRONESIA

### (1) POISONOUS PLANTS IN YAP

Takeomi ETOH

#### Abstract

Poisonous plants in Yap were surveyed by the literature. In total, there exist 15 poisonous plants as follows; *Barringtonia racemosa* Roxb., *B. speciosa* Forst., *Callicarpa cana* L., *Cassia occidentalis* L., *Cycas circinalis* L., *Derris elliptica* Benth., *D. melaccensis* Prain, *Dioscorea bulbifera* L., *D. pentaphylla* Hook.f., *Excoecaria agallocha* L., *Leucaena glauca* Benth., *Ormocarpum sennooides* DC., *Pangium edule* Reinw., *Semecarpus venenosa* Volken and *Tacca pinnatifida* Forst.

A few of these are very poisonous, and some of the rest are used as fish poison. Besides, there is a possibility that *Laportea interrupta* (L.) Chew is poisonous.

Key words: fish poison plant, poisonous plant, Yap

#### Introduction

In Micronesia, there exist many edible plants and also poisonous plants. Unknown origin of those edible plants in Micronesia, or unknown original habitat of those introduced edible plants, will be clarified, and they will be classified into endemic and introduced plants. The relationship between the plants in the original habitat and those introduced to Micronesia will be studied, and the movement of those edible plants will be clarified. The movement of those edible plants must be related with that of people to Micronesia. Then, clarification of the movement of edible plants will help us to confirm the ancient movement of people to Micronesia.

Poisonous plants in Yap, Micronesia, and the tropics were already referred by MERLIN et al. (1996), by KANEHIRA (1933), and by CORNER & WATANABE (1969), respectively. However, the survey was not sufficient. It is necessary to find out all the poisonous plants and to supply full information on the poisonous plants to the visitors or travelers and the indigenous people. It might be necessary to publish a useful illustrated book of those poisonous plants in the tropics for the safety of people, especially of the visitors. Moreover, it is necessary to study unidentified poison of those plants. There is a possibility that some useful substances can be extracted from those plants. Most of the poisonous plants are well known among the indigenous people. However, some of the poisonous plants must be unknown to the foreign botanists. The purpose of this research is to collect those poisonous plants in Yap of Micronesia by the literature as a first step of the research.

#### Poisonous Plants Including Fish-poison Plants

*Barringtonia racemosa* Roxb. ; Lecythidaceae (Barringtoniaceae), Common Putat (E; English name), Wa'thol (Y; Local name in Yap), Waathul (Y), Sagaribana (J; Japanese name) It is said that hogs are stupefied by the fruits of this plant (CORNER & WATANABE, 1969).

*Barringtonia speciosa* Forst. = *B. asiatica* Kurz ; Lecythidaceae (Barringtoniaceae), Sea Putat (E), Buiwol (Y), Buiywool (Y), Goban-no-ashi (J) The seeds of this plant have been used to stupefy fish and octopus in many Pacific islands. To stun fish in tidal pools of the reef, the firm white seeds can be crushed, mixed with water, and thrown into pools where fish are found. This method does not appear to harm the flesh of the fish as food. The bark is used by some on Yap for medicine (MERLIN et al. 1996).

*Callicarpa cana* L. = *C. candicans* Burm. f. ; Verbenaceae, Garwew (Y), Kuroshikibu (J), Uotorishikibu (J) The leaves are pounded and then used as a fish-poison. In Yap, the flowers, bark, and leaves are used for medicine, and the fruits are sometimes eaten raw (MERLIN et al. 1996).

*Cassia occidentalis* L. ; Leguminosae (Fabaceae), Habuso (J) All parts of the plant are poisonous, and this plant has insect-killing ability. The raw seeds or leaves are used as laxative (CORNER & WATANABE, 1969).

*Cycas circinalis* L. = *C. rumphii* Miq. ; Cycadaceae, Fal'tiir (Y), Cycad (E), Jawa-sotetu (J) The seeds contain poisonous phytosterin. The starch in the seeds and in the pith of the trunk is edible after washed with water (CORNER & WATANABE, 1969).

*Derris elliptica* Benth. ; Leguminosae (Fabaceae), Yuub (Y), Derris (E), Tuba root of Malaya (E), Derisu (J), Toba (J), Haitoba (J), Shirotoba (J) The root contains rotenone, which is the raw material for insecticides against plant pests. The white milky exuded sap from the pounded roots is used as fish-poison, but it is not allowed in many areas because all the fishes are killed with this. The indigenous people in Malay used this exuded sap from the roots as fish-poison or arrow-poison for hunting. This species is the most widely grown derris (IWASA, 1975).

*Derris melaccensis* Prain ; Leguminosae (Fabaceae), Yuub (Y), Tachitoba (J) The root contains rotenone, and this plant is more poisonous than *D. elliptica* (CORNER & WATANABE, 1969). This is used as an insecticide. The roots are pounded and used as a traditional source of poison to stun fish in many tropical areas including Yap. Today, it is against the law for the general public to use this plant for fish-poison, but people in a few villages can use it because of traditional rights. Although all parts of the plant may be used in medicine, the roots are not used to make those kinds of medicine that will be drunk or eaten (MERLIN et al, 1996).

*Dioscorea bulbifera* L. v. *sativa* ; Dioscoreaceae, Rook (Y-south), Yoi (Y-north), Wild yam (E), Bitter yam (E), Air potato (E), Potato yam (E), Aerial yam (E), Kashu-imo (J) The big bulbils formed at leaf axils and tubers contain dioscorine, which is a weak poison. The bulbils are bitter when the skin is remained, and therefore, they are used as food after peeled, chopped and boiled to remove dioscorine. The cooked roots are edible only after grated and washed with plant ash, or after chopped, boiled, and then washed for a few days. Wild plants are not edible (CORNER & WATANABE, 1969). The round, smooth-skinned, underground tuber can be used in traditional medicine (MERLIN et al, 1996).

*Dioscorea pentaphylla* Hook. f. ; Dioscoreaceae, Doi (Y), Five-leaved yam (E), Goyodokoro (J)

The tubers contain dioscorine and they are poisonous. The raw tubers are not edible (CORNER & WATANABE, 1969).

*Excoecaria agallocha* L. ; Euphorbiaceae, Bat (Y), Bat'nigak'iy (Y), Blind-your-eyes (E), Shimashiraki (J), Metubushi-no-ki (J) The white milky sap exuded from the injured bark is poisonous. The poisonous sap can cause severe inflammation of the eyes, and may leave a person blind for weeks. Even the smoke of burning wood of this plant is caustic and can cause severe irritation to the eyes. Fijians sometimes used the bark to treat bad pains caused by the stings of poisonous fish (FALANRUW et al. 1987; MERLIN et al., 1996).

*Leucaena glauca* Benth. = *L. leucocephala* LMK. ; Leguminosae, Ganitnityuwan (Y), Wild tamarind (E), Gingoukan (J) The leaves are poisonous to horses (CORNER & WATANABE, 1969).

*Ormocarpum sennoides* DC. = *O. cochinchinense* (Lour.) Merr. ; Leguminosae (Fabaceae), Gagat? (Y), Hama-senna (J) Weak poison (CORNER & WATANABE, 1969).

*Pangium edule* Reinw. ; Flacourtiaceae, Rowal (Y), Kupayan (J), Pangi-no-ki (J) This is a famous poisonous plant in Southeast Asia. The plant contains cyanide. The yellow pulp in the fruit contains cyanide and smells bad rotten onion. It tastes sweet, but it is poisonous when eaten in raw. It is edible after soaked in water for a long time. The cyanide in the seeds is also poisonous. The seeds are rich in oil and edible after pounded and washed with water. The leaves, resin, and bark are also poisonous, and they are used as fish-poison (NAKAMURA, 1983). The seeds are useful as insecticide, and they are also used to keep or preserve fish (KANEHIRA, 1933).

*Semecarpus venenosa* Volken = *S. venenosus* ; Anacardiaceae, Changad (Y), Doku-urushi (J) The milky sap of the whole plant including leaves is very poisonous and dangerous. Care should be taken when moving through forested areas that contain trees of this species. Severe skin irritations and rashes can result from contact with the poisonous sap secreted by this plant (MERLIN et al., 1996).

*Tacca pinnatifida* Forst. = *T. leontopetaloides* O.Kuntze ; Teccaceae, Chabchab (Y), Polynesian arrowroot (E), East Indian arrowroot (E), Tashiro-imo (J) The poisonous tubers of this plant yield edible starch if prepared correctly (grated, squeezed, soaked, and allowed to settle before cooking) (IWASA, 1980; MERLIN et al. 1996).

### Possible Poisonous Plants

*Laportea interrupta* (L.) Chew ; Urticaceae, Yoyol? (Y) In the same genus of this species, there exist two poisonous plants ; *L. kusaiana* in Kusai Is. and *L. saipannensis* in Saipan Is. These two plants have white hairs on their leaves. Skin irritations can result from contact with those leaves (KANEHIRA, 1933). It is necessary to examine whether *L. interrupta* is poisonous or not.

### Literature Cited

CORNER, E.J.H. & WATANABE, K. 1969. Illustrated Guide to Tropical Plants. 1147 pp. Hirokawa Pub., Tokyo

- FALANRUW, M.C., WHITESELL, C.D., COLE, T.G., MACLEAN, C.D. & AMBACHER, A.H. 1987. Vegetation survey of Yap, Federated States of Micronesia. Resour. Bull. PSW-21. Pacific Southwest Forest and Range Experiment Station, USDA, Berkley, CA
- 岩佐俊吉 1975. 熱帯の有用作物, 584ページ, 農林統計協会, 東京
- [IWASA, S. 1975. Useful Plants in the Tropics. 584 pp. Norin-tokei-kyokai, Tokyo]
- 岩佐俊吉 1980. 熱帯の野菜, 716ページ, 養賢堂, 東京
- [IWASA, S. 1980. Vegetable Crops in the Tropics. 716 pp. Yokendo, Tokyo]
- 金平亮三 1933. 南洋群島植物誌, 復刻版(1972), 468+3ページ, 井上書店, 東京
- [KANEHIRA, R. 1933. Flora Micronesia, reprint ed. (1972), 468+37 pp. Inoue-shoten, Tokyo]
- MERLIN, M., KUGFAS, A., KEENE, T. & JUVIK, J. 1996. Plants, People and Ecology in Yap. 131 pp. East-West Center, Honolulu, Hawaii
- 中村三八夫 1983. 世界果樹図説, 528ページ, 農業図書, 東京
- [NAKAMURA, M. 1983. An Iconograph of Fruit Trees of the World. 528 pp. Nogyo-tosho, Tokyo]