Plant parts and preparation of edible plants by indigenous Sama-Bajau and Dusun people in Kota Belud, Sabah

F Awang-Kanak*
Preparatory Centre for Science and Technology, Universiti Malaysia Sabah, Jalan UMS, 88400, Kota Kinabalu, Sabah.

*Email: akfazil@ums.edu.my

Abstract. This work presents plant parts and preparation of edible plants by indigenous Sama-Bajau and Dusun people in Kota Belud district, Sabah. A total of ten plant parts were used for the food plants by indigenous Sama-Bajau in Usukan, Kota Belud, Sabah. The most used part of plants is leaves (29.6%), followed by fruit (20.4%) and young leaves (14.8%). Meanwhile, a total of seven plant parts were used for traditional vegetables by indigenous Dusun people from the same district. The most used part of plants by Dusun people in Kadamaian, Kota Belud are leaves (48.1%), tuber (14.8%), stem (14.8%) and fruit (11.1%). There are five types of preparation for plants that were consumed as traditional vegetable; eaten fresh, blanched, boiled, grilled, and stir fry. The findings could provide the baseline data of Dusun and Sama-Bajau sustainable usage of plant resources that are readily available from their surroundings. A study on traditional knowledge on uses of wild edibles and food plants is a necessity to preserve the knowledge and extend the application of its beneficial properties for future ethnopharmacological related research.

1. Introduction
Sabah is a home to more than thirty native groups, and each group usually associated with unique culture and traditional practices. Dusun and Sama-Bajau are the two most dominant indigenous ethnics in Sabah [1]. Traditionally, Dusun and Sama-Bajau utilize plant resources that are available near their locality as food, medicine, utility, and customary rituals [2-6]. Stated in Malaysia National Biodiversity Policy that the cultural heritage in Malaysia has led to sustainable use of country’s rich biological resources. Especially among indigenous people whose daily livelihood are still dependent on natural surrounding including forest [4-6]. This special relationship with nature has manifested in form of traditional food, handicrafts, traditional rituals, and religious system.

In Sabah, local market or known as “tamu” has been a platform for socio economic activities including trade of fresh produce between Dusun and Sama-Bajau, and other ethnic groups. This increase interactions with hill paddy farming and forest foraging Dusun, and had influenced on Sama-Bajau livelihood dynamics, as marine harvesters, and paddy farmers [1-5].

Edibles are known as natural reservoir for nutrients, and many other benefits in application of pharmacology [2]. Other than as source of nutrients and traditional medicine, edible plants could contribute to socioeconomic and cultural significance [5-6]. This work aims to record data of preparation and administration of food plants by Sabah’s two dominant indigenous groups; Dusun and Sama-Bajau from Kota Belud villages.

2. Methodology

2.1. Study area
Kota Belud is a district approximately 70 km from Kota Kinabalu, it is a growing township located on the West Coast of Sabah (Figure 1). The Dusun people live in Kampung Pinolobu, which is located under Kadamaian constituency, meanwhile The Sama-Bajau people live in Kampung Taun Gusi and Kampung Menunggui, which are under Usukan constituency. Kadamaian is an inland area, and...
primarily inhibited by Dusun people. Majority of Sama-Bajau live in coastal Usukan constituency area.

Figure 1. Map of Kota Belud District (Source: Borneo Geographic Expedition 2019).

2.2 Semi-structured interview
Data collection was carried out through semi-structured interviews with key informants among villagers who have the knowledge on traditional vegetables, and utilization of food plants. The interviews with Sama-Bajau from Kampung Taun Gusi and Kampung Menunggui was conducted on May 2017 and the interview withs with Dusun people from Kampung Pinolobu was conducted on October 2019. Prior to interviews, local native chiefs and elders were approached, to obtain consent. Later, informants were choose using snowball sampling techniques [7-8]. Semi-structured interviews facilitate the indigenous villagers to narrate their live within natural environment [7-8].

3. Results and Discussion
A total of ten plant parts were used for the food plants by indigenous Sama-Bajau in Kampung Taun Gusi and Kampung Menunggui (Figure 2). The most used part of plants is leaves (29.6%), followed by fruit (20.4%) and young leaves (14.8%). Other parts of plant that were also used including young fruit (7.4%), young shoots (7.4%), flower (3.7%), tuber (3.7%), inflorescence (1.9%), and inner bark (1.9%). Meanwhile, a total of seven plant parts were used for traditional vegetables by indigenous Dusun people (Figure 3). The most used part of plants by Dusun people in Kampung Pinolobu, Kota Belud are leaves (48.1%), tuber (14.8%), stem (14.8%) and fruit (11.1%). Other parts of plants including root, young shoot, flower.

There are five types of preparation for plants that were consumed as traditional vegetable; eaten fresh, blanched, boiled, grilled, and stir fry. Eighteen types of traditional vegetables were exclusively consumed fresh by the villagers, often with condiments such as chilies, lime juice, salt or mixed with other herbs. Meanwhile 14 types of traditional vegetables were not just prepared fresh and ready to be eaten, but also prepared by using blanched, boiled, grilled, and stir fry method. The preparation methods between two indigenous groups are alike.
The Dusun people also revealed during the interviews how they also used edible plants as traditional medicine. The medicinal plants were administered by making decoction, making paste from crushed leaves, ingesting fresh cut or fresh sap directly from the root [8]. These methods of traditional medicine administration had previously recorded for Dusun who live in Keningau, Penampang, and Tambunan, and for the Murut tribe from Kalabakan district [9-10].

Figure 2. Ten parts of plant that were used as traditional vegetables by Sama-Bajau in Kampung Taun Gusi and Kampung Menunggui. The most used part of plant is leaves (29.6%), fruit (20.4%), young leaves (14.8%), plant body or stem (9.3%), young fruit (7.4%), young shoot (7.4%), flower (3.7%), tuber (3.7%), inflorescence (1.9%), inner bark (1.9%).

Figure 3. Seven parts of plant that were used by Dusun as traditional vegetables in Kampung Pinolobu. The most used part of plant is leaves (48.1%), plant body or stem (14.8%), tuber (14.8%), fruit (11.1%), flower (3.7%), root (3.7%), young shoot (3.7%).
Wild edible plants are often neglected by agriculture industry, and indigenous people in Sabah are still utilizing the forest produce as their source of food. Thus, the edible forest produce become importance dietary and antioxidant resources for the community. The demand of traditional vegetables would give implication in local economy, sustainable harvest, and conservation value of the species [6].

4. Conclusion
The study has recorded 11 edible plant parts consumed by Sama-Bajau and Dusun people in Kota Belud, Sabah. Leaves were the most used plant parts among both indigenous people, Sama-Bajau (29.6%) and Dusun (48.1%). Five preparation methods of edible plants were recorded for both ethnics, there are eaten fresh, blanched, boiled, grilled, and stir fry. Eating plant parts fresh as traditional vegetable is preferable by both ethnics. These records could contribute to the knowledge on how indigenous people in interior of Sabah sustainably used plant resources from their surroundings. People in interior of Sabah, are still relying on availability of forest produces in their daily life for food, traditional medicine, and to increase household income. Thus, conservation of natural resources, and preservation of local culture and traditional vegetables should be addressed to ensure sustainable supply of food plants for the indigenous people in Sabah.

References
[1] Miller M T 2011 Social Organization of West Coast Bajau. SIL Electronic Working Papers 2011-009
[2] Awang-Kanak F and Abu Bakar M F 2020 Traditional vegetables salad (ulam) of Borneo a source of functional food. Food Research. 3 No. 1. Pp. 1-12
[3] Awang-Kanak F, Matawali A, Jumat N R and Bakri S N S 2021 (in press) Edibles and medicinal plants used by Dusun of Kampung Pinolobu, Kadamaian, Kota Belud, Sabah, Malaysia Journal of Tropical Biology and Conservation
[4] Awang-Kanak F, Abu Bakar M F and Matawali A 2020 Ethnobotanical Indices for Traditional Vegetable and Herbal Medicine Species Consumed in Kota Belud, Sabah, Malaysia IOP Conf. Ser.: Earth Environ. Sci. 549 012028
[5] Awang-Kanak F, Abu Bakar M F and Mohamed M 2018 Ethnobotanical survey on plants used as traditional salad food (ulam) in Kampung Taun Gusi, Kota Belud Sabah, Malaysia. In AIP conference proceedings (Vol. 2002, No. 1, p. 020024). AIP Publishing LLC.
[6] Kodoh J, Mojiol A R, Lintangah W, Gisiu F, Maid M and Liew K C 2017 Traditional knowledge on the uses of medicinal plants among the ethnic communities in Kudat, Sabah, Malaysia International Journal of Agriculture, Forestry, and Plantation. 5 79-85
[7] Martin G J 1995 Ethnobotany: a methods manual (Vol. 1). Earthscan
[8] Cotton C M and Wilkie P 1996 Ethnobotany: principles and applications. Chichester: John Wiley & Sons
[9] Kulip J 2014 The ethnobotany of Dusun people in Tikolod village, Tambunan district, Sabah, Malaysia REINWARDTIA. 14(1) 101-121
[10] Kulip J 2003 An ethnobotanical survey of medicinal and other useful plants of Muruts in Sabah, Malaysia Telopea. 10(1) 81-98