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Gastronomic ethnobotany of traditional vegetables among the Sundanese in rural West Java, Indonesia

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Abstract. *Iskandar BS, Irawan B, Mulyanto D, Iskandar J, Afinanda A, Rajab B. 2023. Gastronomic ethnobotany of traditional vegetables among the Sundanese in rural West Java, Indonesia. Biodiversitas 24: 3932-3950*. Sundanese people in West Java have been known for their tradition of consuming various vegetable plants (*Lalab)*. This study aims to elucidate the Traditional Ecological Knowledge (TEK) on various vegetable plants, folk classification, and use and processing of vegetable plants for family use in the rural Sundanese community in Cijambu Village, Tanjungsari Sub-district, Sumedang District, West Java, Indonesia. This study employed mixed qualitative and quantitative methods with an ethnobotanical and gastronomic approach. The results showed that 67 different local varieties (landraces) of vegetable plants were documented from 65 species, representing 56 genera and 27 families that the Sundanese people of Cijambu commonly use. These vegetable plants can be classified into three categories: vegetable source, part used, and use and processing of vegetables. The people obtain their vegetables from various sources, such as their homegardens, gardens, rice fields, *Perhutani* agroforests, and other non-farming sources, including markets, small village shops, and vegetable sellers. The parts of vegetable plants usually consumed by the people of Cijambu Village can be divided into eight parts: the bulb, flower, fruit, leaf, rhizome, root/tuber, seed, and shoot. The vegetable plants are traditionally consumed as fresh raw salad and cooked vegetables, spices, and at least 12 main or basic types of Sundanese food meals, namely various *Acar, Asinan, Buntil, Karedok, Lodeh, Lotek, Rujak, Sambel, Sayur/Angeun, Semur, Tumis/Oseng*, and *Urab* with a total of 58 kinds of food meals. At the same time, various Sundanese chili sauces (*Sambel*) were documented in at least 14 types. Based on ethnobotanical gastronomy, the Sundanese community's cultural practice of consuming *Lalab* results from a complex interaction between human communities, food, and their local environment.

Keywords: Ethnobotany, Sundanese rural people, TEK, traditional ecological knowledge, vegetable

INTRODUCTION

Sundanese people in rural West Java, Indonesia, have traditionally used various plant species for their daily needs, including food plants. They consume fresh raw salad (*Lalab)*, cooked vegetables, spices, and chili sauces (*Sambel*) for a daily food menu that has become one of the cultural identities of the Sundanese people (Rahman 2018). Traditionally, the culture of the Sundanese people consuming *Lalab* has been going on for a very long time, passed down from generation to generation based on Traditional Ecological Knowledge (TEK). Therefore, *Lalab* in Sundanese people has an important role in cultural life. The *Lalab* is not only a means of fulfilling food needs, but it also has cultural values (Amalia and Marta 2018).

Based on gastronomic ethnobiology, the diversity of traditional foods, including *Lalab* in rural ecosystems of West Java, is strongly influenced by the diversity of the local biophysical environment and the diversity of local cultures (Maffi and Dilts 2014; Pieroni et al. 2016; Franco et al. 2018; Rahman 2018; Iskandar et al. 2023). The Sundanese people who reside in rural ecosystems interact with their local environment in such a way that they shape each other. As a result, the agricultural systems, consumption, and heat status of the Sundanese rural people depend on various local environmental factors, including pants, soil, water, temperature, and rainfall. (Iskandar 2017; Iskandar and Iskandar 2023). Generally, food choice in the community is not simply an individual behavior but a practice influenced by social and environmental conditions, and these environments vary greatly, contributing to growing natural health inequalities (Engler-Stringer et al. 2014; Pieroni et al. 2016; Mulyanto et al. 2018).

The culture of the Sundanese people, therefore, to consume a variety of *Lalab* is influenced by local ecosystem factors, such as cold mountainous areas and fertile soil, which is very good for the growth of various vegetable plants (Iskandar et al. 2017; 2020; Mulyanto et al. 2018; Rahman 2018). The variety of vegetable plant species (*Lalab*) commonly consumed by rural people of West Java is very high (Santosa et al. 2015; Cahyanto et al. 2019; Septiani et al. 2020; Hernawati et al. 2022). These vegetable plants are obtained by rural people from various types of agroecosystems, including homegardens, gardens,

and rice fields, as well as from forests that grow wild (Cahyanto 2019; Silalahi 2019; Iskandar and Iskandar 2023; Suwartapradja et al. 2023). In addition, the *Lalab* is obtained by buying because various vegetable plants are commonly traded in village markets and traditional markets in urban (Iskandar et al. 2020; Gordi et al. 2022). Various parts of plants, such as leaves, fruit, bulb, tuber, and rhizome, were commonly used as *Lalab* by rural communities in West Java; they are consumed as a fresh vegetable (*Lalab*), cooked, as well as used as various spices for making some distinctive dishes of the Sundanese people, including *Karedok* (fresh salad and peanut), and *Lotek* (boiled salad and peanut) (Santosa et al. 2015; Cahyanto et al. 2019).

The tradition of consuming various types of vegetables (*Lalab*) in the Sundanese is very good for health and food sovereignty. That is because several types of vegetable plants contain rich nutrients, such as vitamins, and several types of vegetable plants also have important functions for human health (Amalia and Marta 2018; Hendariningrum 2018; Amrinanto et al. 2019; Iskandar et al. 2020; Hernawati et al. 2022; Kodir and Moektiwardoyo 2022). In addition, the availability of various types of vegetable plants in various agroecosystems, such as homegarden, which has multiple ecological and socio-cultural functions (Galhena et al. 2013; Mulyanto et al. 2018; Suwartapradja et al. 2023); can act as food sovereignty and food security of the rural area (Kaswanto and Nakagoshi 2014; Gbedomon et al. 2017; Amalia and Marta 2018; Sharma et al. al. 2022; Suwartapradja et al. 2023).

Nowadays, market systems are intensively penetrated economically. Modern food from outside strongly influenced the young generation of Sundanese rural consuming various *Lalab* are diminishment, and its Traditional Ecological Knowledge (TEK) may be eroded (Hidayati et al. 2017). This paper elucidates the TEK of the Sundanese people of Cijambu Village, Sumedang, West Java, Indonesia, on various vegetable plants, folk classification, and the use and processing of vegetable plants for family use.

MATERIALS AND METHODS

Study area

This research was conducted in Cijambu Village, Tanjungsari Sub-District, Sumedang District, West Java Province, Indonesia (Figure 1).

Intensive field research was carried out from March to June 2022. Geographically, Cijambu Village is located at 6°50'38.43"S and 107°47'34.67"E. It is a mountainous area located at an altitude of 1,193 m above sea level, with an average temperature of 250-300 C. This village has a total area of 1,365 hectares. The total population in 2022 was recorded to be 4,515 people consisting of 2,345 men and 2,170 women. The main livelihood of the people in Cijambu Village is farmers, and other livelihoods are traders, civil servants, and laborers (Statistics of Cijambu 2022). Based on the landscape ethnoecology (Iskandar and Iskandar 2023), Cijambu Village has five main landscape types: homegardens, vegetable gardens, paddy fields, agroforest, and forest (Figure 2).

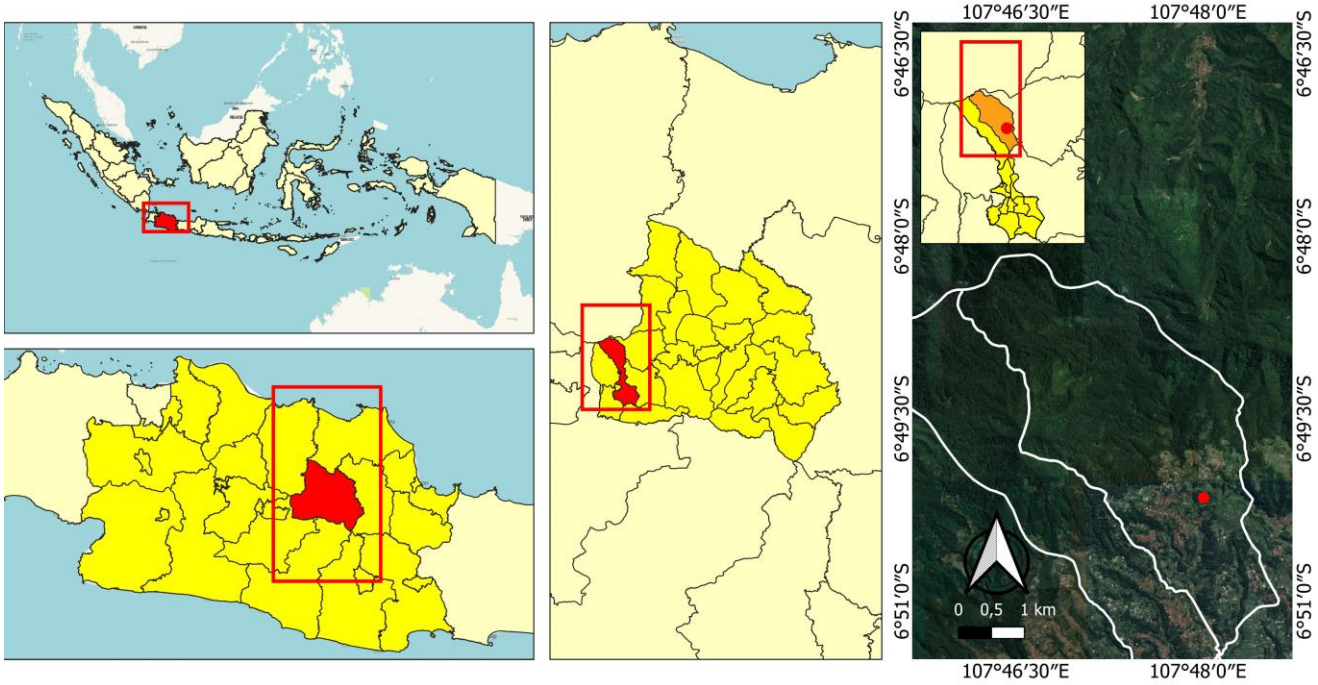

Figure 1. The location of the research, the Cijambu Village, Tanjungsari Sub-district, Sumedang District, West Java, Indonesia

Figure 2. Various landscape types in Cijambu Village, Tanjungsari Sub-District, Sumedang District, West Java, Indonesia: A. Homegarden, B. Vegetable garden, C. Terraced paddy field, D. Agroforest with the upland field, E. Agroforest with coffee and vegetable, F. Forest

The homegarden is a piece of land around the house planted with various seasonal and perennial plant species. Some species of vegetable plants are commonly planted in the homegarden. Gardens are agricultural land outside the settlement, and homegardens are mostly planted with commercial vegetable crops, including cabbage, beans, and others. The mixed garden is located outside the settlement and is usually planted with various seasonal and perennial crops, such as wood, fruits, bamboo, and vegetables. The paddy field is a mountain rice field traditionally made into a terracing system to prevent landslides. During the rainy season, the rice fields are predominantly planted with rice. Still, during the rainy season, some rice fields are commonly planted with various vegetable crops, especially when there is insufficient water from the irrigation system. The *Perhutani*-owned agroforestry is the property of a state-owned company assigned to manage production forests and protected forests planted with forest wood, coffee, and vegetables. Meanwhile, the natural forest landscapes of Cijambu Village are predominantly planted with *Rasamala* (*Altingia excelsa* Noronha) production forest, pine production forest, and eucalyptus production forest.

Procedures

We used a mixed-qualitative and quantitative method for this study with a gastronomic ethnobotanical approach (Albuquerque et al. 2014; Pieroni et al. 2016; Iskandar 2018), the study of complex interactions between humans, communities, food, and environment (Pieroni et al. 2016). We also employed several techniques for collecting qualitative data: field observations, semi-structured interviews, and participant observation.

As a first approach to ethnobotanical research, we conducted consent-seeking, rapport-building, and ethical considerations. Following the requirement of research permission, we asked permission from the village leader (*Kepala Desa* or *Kades*) and sub-district leader (*Camat*). For individual oral consent, we always asked permission before interviewing respondents and deep interviews with informants. We used questionnaires for the interview with respondents and an interview guide for the informants.

We also undertook field observations to understand the local environmental conditions, such as the village conditions. Various vegetable crops were cultivated in these agroecosystems, including homegardens, gardens, rice fields, and forest ecosystems. The semi-structured interview technique was carried out with purposively selected informants that included the formal village leaders, the informal leaders, members of village farmer groups, members of women farmer groups, owners of village small shops *(Warung*), and homemakers who cooked vegetables daily. Meanwhile, we conducted participant observation by asking questions and being actively involved in the work being carried out by the informants, such as farmers' vegetable harvesting in the garden and women preparing various vegetable dishes.

We collected the quantitative data on the respondents in a representative manner of the total population of household heads of Cijambu Village, especially the natives of Cijambu. The number of respondents is determined using a statistical formula (Iskandar 2018), namely:

$$n = \frac{N.Z^2.P.(1-P)}{N.d^2 + Z^2.P(1-P)}$$

Where:
N: Total of respondent
N: Total of household heads (800)
Z: Normal variable value (1.96)
P: The largest possible proportion (0.50)
d: Sampling error (0.1)

There are 800 household heads in Cijambu Village; thus, 86 were randomly chosen using statistical formulas. Each respondent was interviewed using a questionnaire, with several questions related to various vegetable plants, how they obtain the vegetables for the family, and how they use and process them.

Data analysis

Qualitative data collected from observations, semi-structured interviews, participant observation, and statistical data and reports were analyzed, including cross-checking, summarizing, and synthesizing to make a narrative account. Cross-checking validates the data obtained from the informants, the results of field observations, and various village and sub-district report data and statistics. The data is then summarized, synthesized, and narrated in descriptive analysis (Iskandar 2018). To identify the scientific names of the vegetable plants in Cijambu Village, we consulted Wijaya and Epriliati (2013).

Meanwhile, the quantitative data from the interviews with respondents were analyzed statistically by calculating the frequency, i.e., the percentage of the respondent's answers. The following is the statistical formula to calculate the frequency of respondent's answers which is later described in a descriptive analysis (Iskandar 2018):

$$Fi = \frac{n_i}{N} = 100\%$$

whereby,
Fi: Percentage of total respondents
ni: Frequency of respondent's answer
N: Total respondents

We used Use Value (UV) to determine the use value of vegetable plant species. The UV is a quantitative index to determine the species of vegetable plants considered important food ingredients by the people in the research area. The higher UV value indicates the main type used by local residents.

As we have conceived, the UV is calculated using the following formula (Silva et al. 2014). The index of UV shows that the higher the value of the UV index, the more the respondent uses this species of plant.

$$UV_{is} = \Sigma \frac{U_{is}}{n_{is}}$$

Where:
Uv*is*: Use the value of species *s* to respondent *i*
U*is*: Number of uses of species *s* mentioned in each event by respondent *i*
n*is*: Number of events in which respondent i cited species s

RESULTS AND DISCUSSION

Local knowledge of vegetable plants

According to key informants, most Sundanese people use the term *Lalab* to refer to vegetables and *Lalaban* for various vegetable plants. Based on the Sundanese dictionary (Rancage Cultural Foundation 2021), there are several terms related to the word *Lalab*, i.e., *Lalab-Lalab* (all kinds of *Lalab*) and *Lalabeun* (ingredients for *Lalab*).

From the direct field survey and interview with respondents, it was documented 67 different local varieties (landraces) of vegetables from 65 species, representing 56 genera and 27 families of plants that are commonly used by Sundanese rural people of Cijambu Village (Table 1 and Figure 3). Moreover, based on family, species/landraces of Fabaceae is the family with the highest number of species mentioned (12), followed by Solanaceae (7), Apiaceae (4), Brassicaceae (4), Cucurbitaceae (4), Poaceae (4), and Zingiberaceae (4). These seven families account for 60% of the total number of species used as vegetables (Figure 4)

This result is slightly similar to other studies in West Java areas, including the Subang Sub-district (Cahyanto et al. 2019) and Naga Community of Tasikmala (Septiani et al. 2020) in that it has several families, namely Fabaceae has a high number of species. Some species of Family Fabaceae, namely *Archidendron jiringa* (Jack) I.C. Nielsen, *Psophocarpus tetragonolobus* (L.) DC., *Vigna unguiculata* subsp. *sesquipedalis* (L.) Verdc., *Leucaena leucocephala* (Lam.) de Wit, and *Parkia speciosa* Hassk. are recorded in those areas.

Based on some similarities of vegetables that are utilized by rural people of Cijambu, Subang, and Naga, it is doubtful if the Sundanese ethnic and cultural background may determine the consume slightly similar vegetables. Regarding the ethnobotanical gastronomic point of view, various vegetables are strongly based on TEK and embedded with tradition. Unlike scientific knowledge, the TEK is local, obtained from observation, orally transmitted, characteristically holistic, integrative, and strongly embedded with cultural tradition (Iskandar 2018). Since the utilization of vegetables has been strongly influenced by cultural tradition, some diversity of vegetables in some rural areas, including Cijambu, Subang, and Naga, are highly similar due to the similar natural condition, history, and Sundanese culture of the region (Surya and Tedjakusuma 2022).

Folk classification

Based on informants of Cijambu Village, 67 species of vegetable plants (*Lalab*) can be classified into three categories: vegetable source, partly used, and the use and processing of vegetable plants (Figure 5).

Table 1. List of plant species used as vegetables in Cijambu Village, Sumedang District, West Java, Indonesia

Scientific name and family	Part Used	Main Use	Sources*							Fi	UV_{is}	BGS
			1	2	3	4	5	6	Σ			
Allium cepa L., Amaryllidaceae	Bulb	Spice	0	0	1	0	0	0	1	19.76	0.01	Exotic
Allium fistulosum L., Amaryllidaceae	Leaf	Spice	1	0	1	1	0	0	2	48.83	0.01	Exotic
Allium sativum L., Amaryllidaceae	Bulb	Spice	0	0	1	0	0	0	1	20.93	0.01	Exotic
Alpinia galanga (L.) Willd., Zingiberaceae	Rhizome	Spice	1	0	1	0	0	0	2	11.62	0.01	Native
Amaranthus tricolor L., Amaranthaceae	Leaf	Cooked	1	0	1	0	0	1	3	94.18	0.04	Native
Apium graveolens L., Apiaceae	Leaf	Spice	1	1	1	0	0	0	3	87.20	0.02	Exotic
Arachis hypogaea L., Fabaceae	Seed	Spice	1	1	1	0	0	0	3	10.46	0.03	Exotic
Archidendron jiringa (Jack) I.C.Nielsen, Fabaceae	Fruit	Fresh	0	0	1	0	0	0	1	45.34	0.03	Native
Artocarpus heterophyllus Lam., Moraceae	Fruit	Cooked	0	1	1	1	0	0	3	11.62	0.02	Exotic
Bambusa vulgaris Schrad. ex J.C.Wendl., Poaceae	Shoot	Cooked	0	0	0	1	0	0	1	41.80	0.03	Exotic
Brassica rapa L., Brassicaceae	Leaf	Cooked	1	1	1	0	0	0	3	95.34	0.04	Exotic
Brassica oleracea var. *capitata* L., Brassicaceae	Leaf	Cooked	1	1	1	1	0	0	4	94.18	0.08	Exotic
Brassica oleracea var. *capitata* L., Brassicaceae	Leaf	Cooked	1	1	1	0	0	0	3	73.25	0.04	Exotic
Brassica oleracea var. *italica* Plenck, Brassicaceae	Leaf	Cooked	0	1	1	0	0	0	2	59.30	0.03	Exotic
Cajanus cajan (L.) Huth, Fabaceae	Fruit	Fresh	1	1	1	0	0	0	3	59.30	0.02	Exotic
Capsicum annuum L., Solanaceae	Fruit	Spice	1	1	1	0	0	0	3	58.13	0.02	Exotic
Capsicum frutescens L., Solanaceae	Fruit	Spice	1	1	1	0	0	0	3	58.13	0.01	Exotic
Carica papaya L., Caricaceae	Leaf	Cooked	1	1	1	1	0	0	4	69.76	0.04	Exotic
Centella asiatica (L.) Urb., Apiaceae	Leaf	Cooked	0	0	0	1	0	1	2	15.11	0.02	Native
Citrus hystrix DC., Rutaceae	Leaf	Spice	1	0	0	0	0	0	1	11.62	0.02	Exotic
Cnidoscolus aconitifolius (Mill.) I.M.Johnst., Euphorbiaceae	Leaf	Cooked	1	0	0	0	0	0	1	5.81	0.03	Exotic
Cocos nucifera L., Arecaceae	Fruit	Spice	0	1	0	1	0	0	2	17.44	0.04	Exotic
Colocasia esculenta (L.) Schott, Araceae	Leaf, stem	Cooked	1	1	1	1	0	0	4	26.74	0.03	Exotic
Cosmos caudatus Kunth, Asteraceae	Leaf, stem	Cooked	0	1	0	0	1	1	3	2.32	0.05	Exotic
Crassocephalum crepidioides (Benth.) S.Moore, Asteraceae	Leaf, stem	Fresh	1	1	0	1	1	0	4	56.97	0.03	Exotic
Cucumis sativus L., Cucurbitaceae	Fruit	Fresh	1	1	1	0	1	0	4	75.58	0.05	Exotic
Curcuma longa L., Zingiberaceae	Rhizome	Spice	1	1	1	0	0	0	3	6.97	0.01	Exotic
Cymbopogon citratus (DC.) Stapf, Poaceae	Leaf	Spice	1	1	0	0	0	0	2	24.41	0.04	Exotic
Daucus carota L., Apiaceae	Root	Cooked	1	1	1	0	0	0	3	93.02	0.09	Exotic
Diplazium esculentum (Retz.) Sw., Aspleniaceae	Leaf	Cooked	0	1	1	0	0	0	2	4.65	0.03	Native
Etlingera elatior (Jack) R.M.Sm., Zingiberaceae	Flower	Spice	0	1	0	1	0	0	2	5.81	0.01	Native
Gigantochloa atter (Hassk.) Kurz ex Munro, Poaceae	Shoot	Cooked	0	0	0	1	0	0	1	41.80	0.03	Native
Gnetum gnemon L., Gnetaceae	Fruit, leaf	Cooked	1	0	1	0	0	0	2	12.79	0.02	Native
Hydrocotyle sibthorpioides Lam., Araliaceae	Leaf, stem	Fresh	1	1	0	1	1	0	4	15.11	0.02	Native
Ipomoea aquatica Forssk., Convolvulaceae	Leaf	Cooked	1	0	1	0	0	0	2	96.51	0.04	Native
Kaempferia galanga L., Zingiberaceae	Rhizome	Spice	1	1	1	0	0	0	3	11.62	0.01	Exotic
Lactuca sativa L., Asteraceae	Leaf	Fresh	1	1	1	0	0	0	3	68.60	0.01	Exotic
Leucaena leucocephala (Lam.) de Wit, Fabaceae	Fruit	Cooked	1	1	1	1	0	0	4	41.86	0.04	Exotic
Limnocharis flava (L.) Buchenau, Alismataceae	Leaf	Cooked	0	0	0	0	1	0	1	39.53	0.05	Exotic
Luffa acutangula (L.) Roxb., Cucurbitaceae	Fruit	Cooked	0	0	1	0	0	0	1	05.81	0.01	Exotic
Manihot esculenta Crantz, Euphorbiaceae	Leaf	Cooked	1	1	1	0	0	0	3	81.39	0.05	Exotic
Mentha ×piperita L., Lamiaceae	Leaf	Fresh	1	0	0	0	0	0	1	1.16	0.01	Exotic
Momordica charantia L., Cucurbitaceae	Fruit	Cooked	1	1	1	0	1	0	4	72.09	0.03	Native
Musa acuminata Colla, Musaceae	Flower	Cooked	0	0	0	1	0	1	2	08.13	0.02	Native
*Nasturtium microphyllum (*Boenn *ex* Rchb*)* Rchb, Brassicaceae	Leaf	Fresh	0	0	0	0	1	1	2	68.60	0.04	Exotic
Ocimum basilicum L., Lamiaceae	Leaf	Fresh	1	1	0	0	0	0	2	68.60	0.01	Native
Oenanthe javanica (Blume) DC., Apiaceae	Leaf	Fresh	1	1	0	0	0	1	3	11.62	0.01	Native
Parkia speciosa Hassk., Fabaceae	Fruit	Fresh	0	0	1	1	0	0	2	47.67	0.02	Native
Phaseolus lunatus L., Fabaceae	Fruit	Cooked	1	1	1	0	0	0	3	62.79	0.04	Exotic
Phaseolus vulgaris L., Fabaceae	Fruit	Cooked	1	1	1	0	0	0	3	91.86	0.05	Exotic
Phaseolus vulgaris L., Fabaceae	Fruit	Cooked	0	0	1	0	0	0	1	70.93	0.04	Exotic
Pilea melastomoides (Poir.) Wedd., Urticaceae	Leaf	Fresh	1	1	0	0	1	0	3	6.97	0.01	Native
Pontederia vaginalis Burm.f., Pontederiaceae	Leaf	Cooked	0	0	0	0	1	0	1	20.93	0.04	Native
*Psophocarpus tetragonolobus (*L.*)* DC., Fabaceae	Fruit	Fresh	1	1	1	0	0	0	3	54.65	0.02	Exotic
Raphanus raphanistrum L., Brassicaceae	Root	Cooked	0	0	1	0	0	0	1	10.46	0.01	Exotic
Breynia androgyna (L.) Chakrab. & NP.Balakr., Phyllanthaceae	Leaf	Cooked	1	1	0	0	1	0	3	11.62	0.01	Native
Sicyos edulis Jacq., Cucurbitaceae	Fruit	Cooked	1	1	1	0	0	0	3	88.37	0.05	Exotic
Solanum lycopersicum L., Solanaceae	Fruit	Cooked	1	1	0	1	0	0	3	79.06	0.03	Exotic
Solanum melongena L., Solanaceae	Fruit	Fresh	1	0	1	0	0	0	2	72.09	0.04	Exotic
Solanum americanum Mill., Solanaceae	Fruit	Fresh	1	0	0	1	0	0	2	80.23	0.03	Exotic
Solanum torvum Sw., Solanaceae	Fruit	Cooked	1	0	0	1	0	0	2	3.48	0.01	Exotic
Solanum tuberosum L., Solanaceae	Tuber	Cooked	0	0	1	0	0	0	1	72.09	0.03	Exotic
Syzygium polyanthum (Wight) Walp., Myrtaceae	Leaf	Spice	1	1	0	1	0	0	3	10.46	0.01	Native
Tamarindus indica L., Fabaceae	Fruit	Spice	0	0	1	1	0	0	2	08.13	0.02	Exotic
Vigna radiata (L.) R.Wilczek, Fabaceae	Fruit	Cooked	0	0	1	0	0	0	1	48.83	0.05	Exotic
Vigna unguiculata subsp. *sesquipedalis* (L.) Verdc., Fabaceae	Fruit	Fresh	1	1	1	0	0	0	3	77.90	0.06	Exotic
Zea mays L., Poaceae	Fruit	Cooked	0	1	1	0	0	0	2	20.93	0.05	Exotic
		Σ	44	41	46	24	15	12	182			
		%	24	23	25	13	8	7	100			

Note: * A. Homegarden, B. Garden/upland field, C. Outside the village through the local stalls, peddlers, and nearest traditional market, D. *Perhutani* agroforests, E. Paddy fields, F. Uncultivated land; Σ: Total number of sources; BGS: Biogeographical Status to Java; Fi: Percentage of the total respondents; UV_{is}: Use value of species *s* to respondent *i*

Figure 3. Various vegetables are commonly utilized by rural people of Cijambu Village, Sumedang District, West Java, Indonesia: A. *Phaseolus lunatus* L, B. *Sechium edule* (Jacq.) Swartz, C. *Allium fistulosum* L., D. *Amaranthus tricolor* L., E. *Apium graveolens* L., F. *Solanum lycopersicum* L., G. *Brassica oleracea* L. var *capitata*, H. *Crassocephalum crepidioides* (Benth.) S. Moore, I. *Manihot esculenta* Crantz, J. *Ipomoea aquatica* Forssk, K. *Capsicum frutescens* L, L. *Psophocarpus tetragonolobus* (L.) DC, M. *Pleurotus ostreatus* Champ. Jura. Vosg, N. *Pilea melastomoides* (Poir.) Wedd., O. *Cosmos caudatus* Kunth.

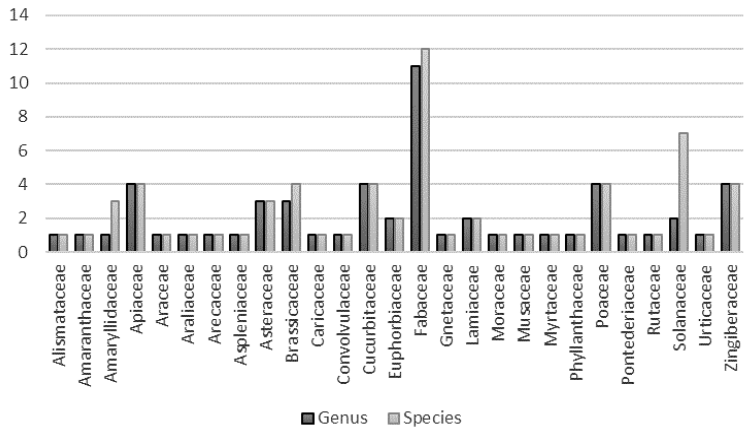

Figure 4. Number of species and genera by their family

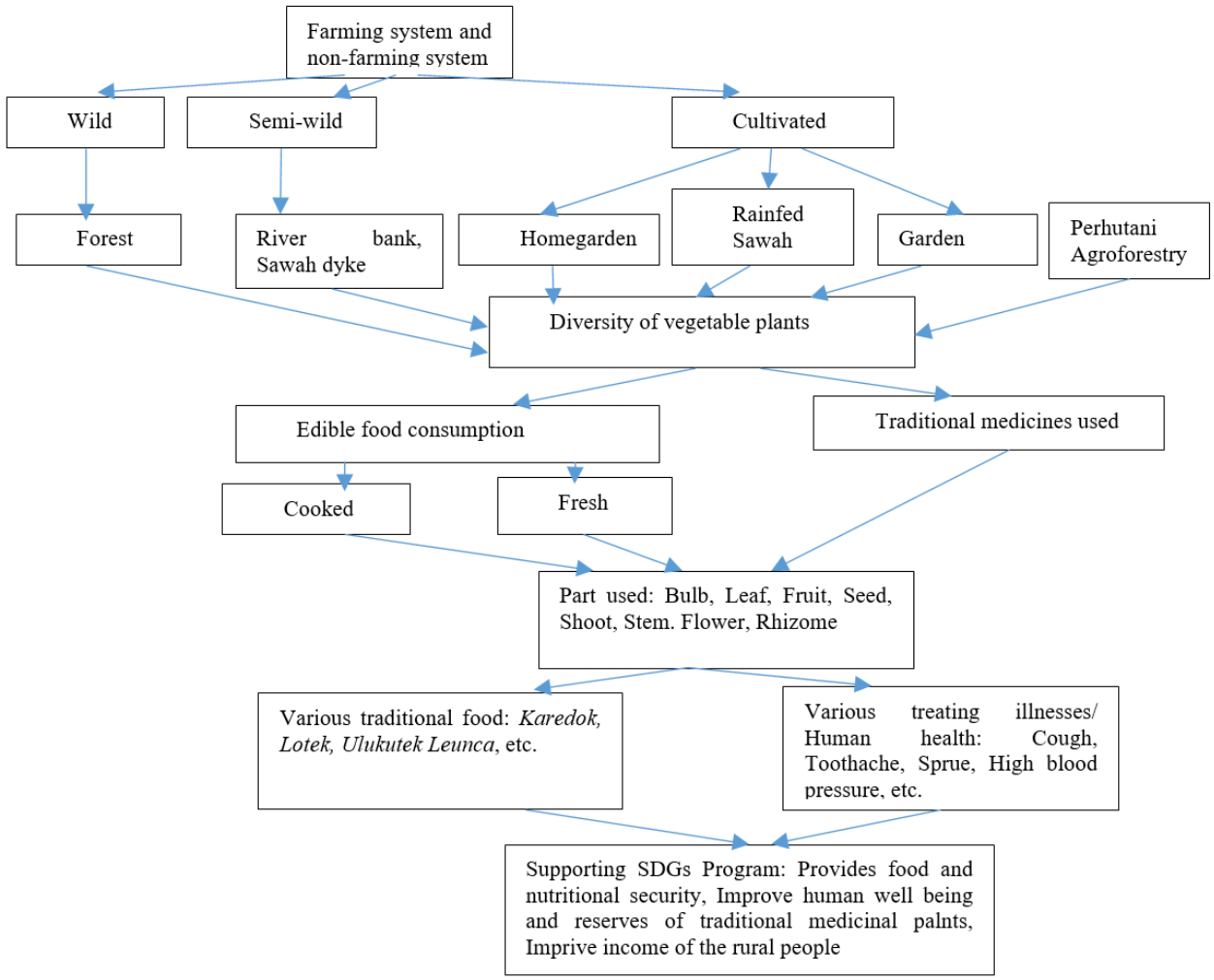

Figure 5. Folk classification of the vegetable plants based on Cijambu Village people, Sumedang District, West Java, Indonesia

Vegetable sources

Based on sources, vegetables can be classified into two groups: farming and non-farming. The farming system may be classified based on the cultivated system: homegarden, vegetable garden of rainfed, *Sawah*, and *Perhutani* Agroforestry. While non-farming may be classified according to domestication, namely wild and semi-wild, particularly vegetable usually grow in *Sawah* and forest habitats.

Homegardens

Traditionally, the local people of Cijambu Village have cultivated various vegetable gardens in the homegarden. The homegarden is an area of land surrounding a house with a certain boundary cultivated by various annual and perennial plants, including vegetable plants. Homegardens are generally characterized by different vegetation strata composed of trees, shrubs, and herbs associated with annual and perennial cultivated plants and livestock components, such as chickens (Sujarwo and Caneva 2015; Mellise et al. 2018). As a result, the traditional homegarden can be classified as agroforestry, a land-use system that resembles a forest in structure and provides various ecological and socio-economic functions (Paembonan 2018; Setiani et al. 2022). The ecological functions of the traditional homegardens include gene bank, hydrology and erosion control, carbon sequestration, soil nourishment, and habitat for birds and insects (Suwartapradja 2023). While various socio-economic and cultural functions of homegarden, including providing additional carbohydrate staple food, fruits, vegetables, traditional herbal medicinal, industrial, handicrafts, and medicinal (Agustina et al. 2020; Ramadhani et al. 2021; Ramli et al. 2021; Setiani et al. 2022; Vinceti et al. 2022). These products are mainly used for subsistence economic purposes to fulfill daily needs of home consumption to improve food security and healthy nutrition, but some surpluses, such as fruits, can be sold to obtain additional income (Iskandar et al. 2018a; Castañeda-Navarrete 2021; Gerny et al. 2021; Ivanova et al. 2021; Turnsek et al. 2022). The homegarden planted by vegetable plants may improve vegetable consumption, dietary diversity, and community health, particularly for rural people (Castañeda-Navarrete 2021; Gerny et al. 2021).

In general, harvesting various plant species of the homegarden, including vegetable plants, is usually not carried out simultaneously but can be done all the time, according to the daily needs of the people in the family. This is because the species of vegetable plants are very diverse, so the flowering, fruiting, bulbous and other periods are different, and the harvest also be different. For example, the species of vegetable plants in the homegarden, such as fresh vegetables (*Lalab*), boiled, and for ingredient purposes, such as cassava leaves (*Manihot esculenta* Crantz), *Surawung* leaves (*Ocimum africanum* (Lour), papaya leaves (*Carica papaya* L), lemon-grass (*Cymbopogon citratus* (DC.) Stapf), *Cengek* (*Capsicum frutescens* L), *Cabé* (C*apsicum annuum* L), *Bawang Daun* (*Allium fistulosum* L), and *Cukur* (*Kaempferia galanga* L) can be harvested at any time. Therefore, the existence of various species of plants in the homegarden, including species of vegetable plants, is very beneficial because maintenance is easy, does not require high costs, and is rarely affected by pests, as well as crop failure (Santosa et al. 2015; Mulyanto et al. 2018; Iskandar and Iskandar 2023; Suwartapradja et al. 2023).

Vegetable garden

The homegarden and vegetable garden are dissimilar in that homegarden is the land surrounding the house, planted with a high diversity of annual and perennial plants, and is not intensively managed. While the vegetable garden is located outside of homegarden, cropped by the monoculture of vegetable crops, and is intensively managed. The annual farming vegetable garden consists of land preparation, seed preparation, planting, crop maintenance, harvesting, and utilization of production. Land preparation is employed by hoeing the soil before the rainy season arrives. Seed preparation is done by soaking the vegetable seeds for approximately 30 minutes and one hour with warm water and then leaving them in the open air so they are not too wet before spreading them evenly on the land. Seeding can be done with a distance between rows of approximately 5-10 cm.

Meanwhile, leafy plants such as *Ipomoea aquatica* Forssk, *Amaranthus* spp., *Brassica rapa* L., and *Nasturtium microphyllum* (Boenn. ex Rchb.) Rchb can be sown in pots. Seedlings that have grown and have four to five leaves are transferred to the soil planting medium. The planting is done after the seedlings have grown a few leaves (3 to 4 strands) and make a planting hole according to the spacing of 50 cm-60 cm; the root neck of vegetable plants is also slightly put into the soil. Crop maintenance includes watering, fertilizing, and weeding. Watering is done regularly every morning and evening, especially in the dry season. However, during the rainy season, watering is not necessary. After the plants are about 30 days old, watering is done more intensively by providing water to the plants 2-3 times a day or according to the conditions of the land. The first fertilization uses manure and compost, then covered with plastic and left in the fallows until it rains. Additional fertilizer application is carried out using inorganic fertilizers, including urea and *Phonska* (NPK), with a ratio of 1:1; furthermore, to avoid pests are usually used various pesticides.

The first additional fertilization is conducted when the plants are around 25 days old. Then the next fertilization is done every 10 to 15 days, giving the fertilizer by leaking or force-feeding. Next, weeding around the plants is carried out in the beds or ditches; the people of Cijambu Village usually call it "*Ngala Jukut*" (harvesting grass). At one month's age, the plants were sprayed with 10% derris, 0.01% to 0.03% DDT *Folidol*, or 5% BHC powder once a week. This effort is carried out if there are leaf caterpillar pests that stick so that it affects plant growth. Other disturbances, including the presence of an insect called *Hama Bereng*, attack vegetable plants; therefore, to avoid this pest, Cijambu people usually manage by spraying insecticides with adjusted doses. In the long rainy season, it can also affect the quality of vegetables, such as rot (*Lodoh*); usually, this happens around April, so the people of Cijambu Village call it "rain pest" (*Panyawat Hujan)*, which brings diseases or pest to plants, animals, even humans. In addition, another pest that usually damages vegetable crops in vegetable gardens is wild boar (*Babi Liar* or *Bagong*). The local people try to prevent the nuisance of the wild pigs by driving them away with trained pet dogs.

The vegetables are commonly harvested from the vegetable garden; for *Brassica oleracea* L after the age of 60 - 80 days or three months after planting; for *Amaranthus* spp. and *I. aquatica* plants after 30-40 days after planting. During weeding, they usually harvest *Apium graveolens* L. Various vegetable plants, including *B. oleracea*, *B. rapa*, *Raphanus sativus* L, and *I. aquatica*, are predominantly harvested from the vegetable garden.

Therefore, the vegetable garden differs from the homegarden in its low plant diversity. It is predominated only by annual vegetable crops, which are harvested simultaneously, and the produce is primarily for sale to raise cash for the family instead of household consumptions. Consequently, even though agricultural production has increased, the costs for vegetable garden farming have also increased, environmental destruction has also occurred, and family nutrition has also decreased because the produce of vegetables is mainly for sale (Prihatini et al. 2018).

Perhutani agroforestry

In the last decades, the local people of Cijambu illegally cultivated commercial crops in forests. Since farming vegetable in the forests has negative effects, including soil erosion, landslides, destruction of wildlife habitat, and pesticide pollution, therefore, in the last five years, *Perhutani* has introduced an agroforestry program, namely planting forest wood and coffee trees and less vegetable crops through the Community Forest Management (*Pengelolaan Hutan Bersama Masyrakat-PHBM*) program by introducing the coffee agroforestry. Some vegetable plants, including *A. fistulosum*, *B. oleracea*, and *Etlingera elatior* (Jack) R.M.Sm., are farmed by mixing with *Coffea arabica* L in the *Perhutani* agroforestry. Hopefully, by introducing the *Perhutani* coffee agroforestry program, the

village people of Cijambu will be provided with farming land in the forest. Furthermore, from coffee production, village people's income will increase. Still, the forest environment is maintained to prevent soil erosion, landslides, as a habitat for animals, including bird and insect species, and pollution and reduced pesticides. Because according to some scholars (*etic* considerations), the agroforestry system--- as a practice of managing land use by combining woody trees in the same area with crops--- has some ecological and socio-economic functions, including maintaining soil fertility, soil protection from soil erosion, protecting and conserving water, providing habitat of wild animals, achieving food security and improving human nutrition, and generate income. These factors would promote maintaining sustainable production and resilient landscapes.

The vegetable garden of rainfed Sawah

Vegetable plants are also farmed by rural people of Cijambu in paddy fields (*Sawah*), mainly in rainfed paddy fields and particularly planted during the dry season. The rainfed *Sawah* is similar to the vegetable garden in that it has intensive agriculture, and most vegetable products are mainly for selling to obtain household cash. Some vegetables commonly farmed in the rainfed *Sawah* are similar to those planted in vegetable gardens, including *A. fistulosum*, *B. rapa*, and *B. oleracea*.

Forest, Sawah, and Sawah embankment

Rural people of Cijambu also obtained various species of vegetables from harvesting wild vegetable species that grow wild in the forest, paddy fields (*Sawah*), and *Sawah* bunds. For example, several species of vegetables, including bamboo shoots/*Iwung Awi* (*Bambusa vulgaris* Schrad. ex J.C. Wendl), banana flowers/*Jantung Cau* (*Musa acuminata* Colla), *Kecombrang*/*Honjé* (*E. elatior*) and *Paku*/*Pakis* (*Dizplazium esculentum* Retz) are commonly harvested from the forests. People usually get various vegetable species from the forest, especially if people go to the forest to hunt wild animals, such as bird species, or harvest grass as cattle feed or fodder. Meanwhile, several other species of vegetables, including *Antanan* (*Centella asiatica* (L.) Urb), are usually collected from the paddy field bunds which grow wild. In addition, local people collect *Sintrong* (*Crassocephalum crepidioides* (Benth.) S. Moore), which usually grows wild on the garden borders, and *Genjer* (*Limnocharis flava* (L.) Buchenau) and *Écéng* (*Pontederia vaginalis* Burm. f) which grow wild in the paddy fields.

The harvesting of a variety of vegetable plants from wild habitats does not only occur in the Sundanese community in rural West Java but also other areas of Indonesia, such as Central Kalimantan (Chotimah et al. 2013), even in some other countries in Asia, for example in the Lesser Himalayan countryside of Pakistan, a variety of vegetable plants are commonly harvested from nature which grow as wild edible vegetables (Abbasi et al. 2013).

Bartering

Generally, the rural people of Cijambu Village have strong solidarity and cooperation with their neighbors. For instance, the rural people of Cijambu obtain some species of vegetables by bartering between neighbors in their village. For example, this is undertaken if a family harvests *Cabé* (*C. annuum*) in the garden. Meanwhile, another family was harvesting *Térong* (*Solanum torvum* Sw); they shared the harvesting products between *Cabé* and *Térong*. Some vegetable crops, including *Bawang Daun* (*A. fistulosum*), *Céngék* (*C. frutescens*), and *Surawung* (*O. africanum*), are commonly cultivated in the homegarden; These products are also commonly shared with the neighbors in the village without selling price.

Purchasing

People of Cijambu Village also obtain various species of vegetables by purchasing from traditional markets, mobile vegetable vendors, small village shops, and sellers of processed vegetables. In general, the species of vegetables purchased by rural people were vegetables that were not widely available in the gardens or their homegardens, including *Wortel* (*Daucus carota* L), *Lobak* (*R. sativus*), *Paria* (*Momordica charantia* L), *Kacang Tanah*/*Suuk* (*Arachis hypogaea* L), *Jengkol* (*Archidendron pauciflorum* (Jack) I.C.Nielsen,), *Peuteuy* (*P. speciosa*), *Kacang Beureum* (*Phaseolus vulgaris* L), *Hiris* (*Cajanus cajan* (L.) Huth), *Togé* (*Vigna radiata* R.Wilczek), *Bonténg* (*Cucumis sativus* L), *Kentang* (*Solanum tuberosum* L), *Terong* (*Solanum melongena* L), *Émés* (*Luffa acutangula* (L.) Roxb), *Tangkil* (*Gnetum gnemon* L), and various spices. These products are used to process vegetables into distinctive various Sundanese food, including *Bawang Putih* (*Allium sativum* L), *Asém* (*Tamarindus indica* L), *Cikur* (*K. galanga*), and *Laja* (*Alpinia galanga* (L.) Willd). Additionally, some boiled vegetables that are also purchased in the form of already processed, such as various vegetable soups (*Sayur*/*Angeun*), including *Sayur Kacang* and *Sayur Lodeh*, fresh salad mixed with spices (*Acar*), *Ulukutek Leunca, Karédok, Loték*, and others.

Table 1 and Figure 4 show that for daily family consumption, the people of Cijambu Village can obtain some vegetables from the internal and external rural ecosystem. Various sources are obtained internally from rural agroecosystem types, homegardens, garden/upland fields, *Perhutani* agroforests, paddy fields, and uncultivated landscape types, including natural forests. While people from outside the village can get vegetables by buying from small local village shops (W*arung Desa*), itinerant vegetable vendors (*Para Pedagang Sayur Keliling)*, and the nearest traditional market. In general, since the demand for vegetables has increased in the rural and urban, vegetables are commonly traded in both village and urban traditional markets of West Java (Iskandar et al. 2018b; 2020),

In terms of Biogeographical Status to Java (BGS), it was documented 19 natives (28.35%) and 48 exotic vegetable landraces (71.64% (Table 1). Based on these data, it shows that some species of vegetables in the Sundanese society, such as *Leunca* (*Solanum americanum*

Mill.), *Cengek* (*C. frutescens*), and *Cabe* (*C. annuum*), which are originally from Latin America (Mulyanto et al. 2018). These vegetables have become part of the Sundanese culture as ingredients for consumption of fresh raw salads (*Lalab Mentah*), cooked vegetables (*Lalab Dimasak*), and salads mixed with chili sauce (Mulyanto et al. 2018; Surya and Tedjakusuma 2022). In other words, Sundanese culture in cultivating and consuming types of vegetable plants has applied hybrid knowledge of the TEK and scientific knowledge. Therefore, it can also be inferred that the Sundanese people can easily accept scientific knowledge combined with TEK (Iskandar et al. 2017; 2019).

Part used

Based on a total of 67 landraces (65 species) of vegetable plants documented in Cijambu Village, the most frequently utilized and mentioned by people, namely *Amaranthus tricolor* L, *B. rapa*, *B. oleracea* var *capitata*, *D. carota*, and *I. aquatica* (Table 1).

The parts of vegetable plants usually consumed by the people of Cijambu Village can be divided into eight parts: the bulb, flower, fruit, leaf, rhizome, root/tuber, seed, and shoot. The plant parts most commonly used are leaf (37.3%) and fruit (35.8%) (Figure 5). The fruit part of *C. sativus*, *L. acutangula*, *M. charantia*, *C. cajan*, *L. leucocephala*, *Phaseolus lunatus* L, *P. speciosa*, *P. tetragonolobus* and *S. melongena* are the most popular vegetables. The Cijambu people also are familiar with the leaf of *A. tricolor*, *Lactuca sativa* L, *B. oleracea*, *N. microphyllum*, *M. esculenta*, and *C. asiatica*. These plant parts can be found in their daily staple food (Figure 6).

In general, the people of Cijambu Village consume various plant parts such as fresh salad, cooked vegetables, and spices in plant-based local meals. Among the four methods of consumption, the people mostly eat *Lalab* as cooked vegetables (36 or 53.7%), fresh raw salad (23.8%), and cooked vegetables mixed with spices (23.8%) (Figure 7). Due to higher Fi, the most commonly cooked vegetables are *B. rapa*, *B. oleracea* var *capitata*, and *D. carota*. Also, vegetables usually eaten fresh as a raw salad, due to higher Fi, are *V. unguiculata* subsp. *sesquipedalis*, *N. microphyllum*, and *L. sativa*.

Traditionally the Sundanese Cijambu Village, based on utilizing various parts of plants for vegetables, shows that the various parts of vegetable plants, besides being used for vegetables, also function for other food functions. For example, *C. papaya* leaves, apart from the leaves, are for vegetables, and the fruit parts are mainly for fruit. The young fruit of *Artocarpus heterophyllus* Lam is for vegetables, but the old fruit is for fresh fruit. In addition, the leaves of *M. esculenta* and the leaves and stem of *Colocasia esculenta* (L.) Schott is used for vegetables, but root tuber and tuber species are also used as a carbohydrate staple additional food. While *Syzygium polyanthum* (Wight) Walp. leaves are used for vegetables and cooked spices, the fruit part is used for fresh ingredients. While cassava leaves are mainly for vegetables, and its roots are used as a carbohydrate staple additional food.

The level of vegetable diversity in Cijambu Village is considerably high compared to that recorded in Kampung Naga, Tasikmalaya, which only has 46 species representing 22 families (Septiani et al. 2020) with species from the *Fabaceae* family as the dominant family, slightly lower than that found in Subang district with 50 species representing 19 families. However, it has almost the same number of species from the Fabaceae family (Cahyanto et al. 2019) as Cijambu and Kampung Naga. The various vegetable plants in Cijambu Village are recorded as being in the high category because the people of Cijambu include various plants commonly used as spices, such as *A. sativum*, *A. fistulosum*, *Allium cepa* L, *C. frutescens*, *Curcuma longa* L, *K. galanga*, *A. hypogaea*, and *T. indica*, as are categorized as vegetables.

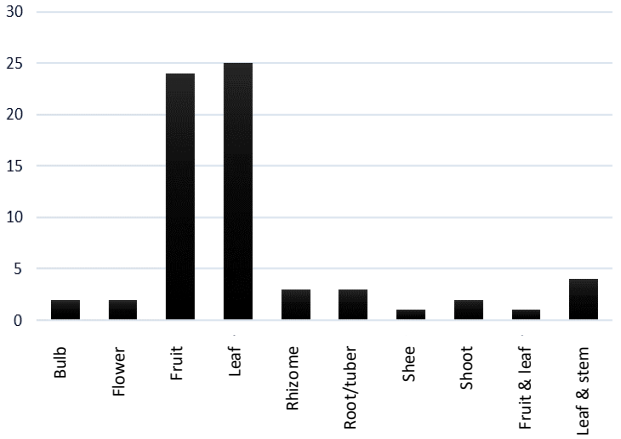

Figure 6. Plant parts used as vegetables

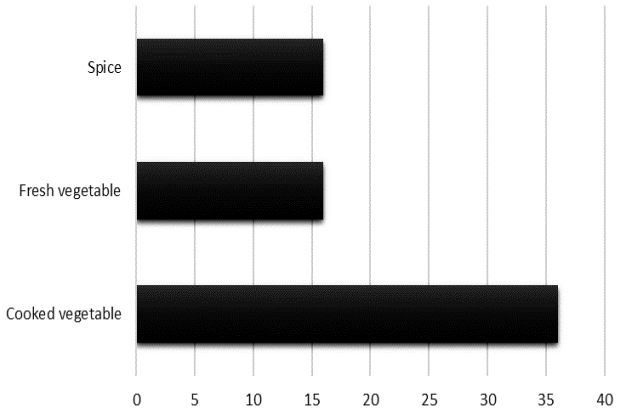

Figure 7. The main use of vegetables

Using and processing vegetable plants

The people of Cijambu consume their vegetables as a fresh raw salad (*Lalab Atah* or *Lalab Seger),* cooked vegetables (*Lalab Dimasak*), as spices and seasonings (*Lalab Untuk Bumbu*), and in plant-based local meals (*Lalab* culinary). The fresh raw salad (*Lalab Atah*) is predominantly consumed mixed with or without chili sauce (*Sambel*, including *Oenanthe javanica* (Blume) DC, *L. sativa*, *B. oleracea*, *C. sativus*, *L. leucocephala*, *P. speciosa*, *Vigna unguiculata* L, *P. tetragonolobus*, *Mentha ×piperita L.*, *O. africanum*, *C. asiatica*, *Solanum lycopersicum* L., *S. melongena*, *S. americanum*, *S. torvum*, and *Pilea melastomoides* (Poir.) Wedd. The consequence of consuming fresh salad is usually mixed with source chili fish/shrimp paste (*Sambel Terasi*) to create a high diversity of distinctive Sundanese chili sauces. At least 14 kinds of *Sambel* were documented of Sundanese *Sambel*, namely: *Sambel Goang*, *Sambel Terasi*, *Sambel Oncom*, *Sambel Suuk*, *Sambel Tomat*, *Sambel Muncang*, *Sambel Hejo*, *Sambel Tomat Atah*, *Sambel Tomat Dimasak*, *Sambel Cibiuk*, *Sambel Hiris*, *Sambel Leunca*, *Sambel Bawang*, and *Sambel Cikur*. *Sambel* has been an integral part of Indonesian food culture for centuries. The *Sambel* can be found almost in all regions of Indonesia. It was documented total *Sambel* in Indonesia is 110 different varieties. The Sumatra and Java islands possess the most diverse types of sambals (64.5%), followed by Borneo Island (10.9%), Sulawesi Islands (9.1%), and other islands such as Bali, Nusa Tenggara, Maluku, and Papua (15.5%) (Surya and Tedjakusuma 2022).

The predominant cooked *Lalab* consit of *L. flava*, *I. aquatica*, *Cosmos caudatus* Kunth, *B. oleracea*, *R. sativus*, *C. papaya*, *L. acutangula*, *M. charantia*, *Sechium edule* (Jacq.) Swartz, *P. speciosa*, *V. unguiculata*, *P. tetragonolobus*, *M. esculenta*, *Monochoria vaginalis* (Burm.f.) C. Press, and *L. flava* (Table 1).

In addition, the vegetable plants are traditionally consumed as various food meals, at least 12 main or basic types of the distinctive Sundanese food meals, namely various *Acar, Asinan, Buntil, Karedok, Lodeh, Lotek, Rujak, Sambel, Sayur/Angeun, Semur, Tumis/Oseng*, and *Urab* with a total of 58 kinds of food meals (Table 2 and Figure 8).

Karedok and *Lotek* are the most popular vegetable-based traditional dishes. *Karedok* is usually made of two main: the basic and the spice. The basic ingredients in *Karedok* include fresh vegetable plants, such as *B. oleracea, C. sativus, V. radiata, V. unguiculata*, and *S. americanum*. While *A. hypogaea, C. frutescens, A. sativum, Ocimum basilicum* L, and *Arenga pinnata* Merr are usually used as spices to season the *Karedok*.

Karedok is traditionally prepared by grounding the spices (red chilies, garlic, peanuts, palm sugar, salt, and shrimp paste) into a fine paste. The grounded paste is mixed with hot water and tamarind to become a sauce. The sauce is then blended with the basic ingredients of *Karedok* to distribute the sauce evenly. It is usually served with or without rice. *Karedok* itself contains rich nutrients, such as calories (1,369 Kcal), protein (50.0 grams), iron (18.2 mg), vitamin B1 (2.32 mg), and Vitamin C (200.0 mg) (Table 3).

In addition, several basic ingredients of the *Karedok*, such as *A. hypogaea*, *K. galanga*, and *A. sativum*, have been known as medical plants (Table 4). For example, *A. hypogaea* consists of seed oil beneficial for edema, *beriberi*, and constipation. Rhizome of *K. galanga* is beneficial to cure coryza, tetanus, stomatitis, abscess, hyperemesis, muscular strong, colic, and food poisoning. At the same time, the bulb of *A. sativum* can be used against cough, asthma, hyperemesis, otis interna, scabies, pityriasis versicolor, coryza, pruritus, antidote for insect bite, hypotension, cholera, anthelminthic, migraine, dysmenorrhea, and impotence (Iskandar et al. 2020). Amrinanto et al. (2019) also mention that Sundanese people's habit of consuming *Lalab* benefits health and improves skin quality. Meanwhile, according to Kodir and Moektiwardoyo (2022), Sundanese *Lalab* has great health benefits. Generally, the oxidative properties of *O. javanica*, *P. melastomoides*, and *C. crepidoides* have a good potential for combating non-communicable and chronic diseases.

This study revealed that some vegetables that are mostly consumed by the rural people of Cijambu, namely *I. aquatica*, *B. rapa*, *A. tricolor*, *B. oleracea*, *D. carota*, *P. vulgaris*, *S. edule*, and *A. graveolens* (Table 1).

Meanwhile, based on the UV, several vegetable plants, including *B. oleraceae* L and *V. unguiculata*, are high (Table 1). The *B. oleracea* is widely consumed as fresh *Lalab* and cooked *Lalab* and for various Sundanese foods, including *Karedok*, *Lotek*, *Sayur*, *Tumis*, *Goreng Bala-Bala*, and *Lodeh*. In comparison, *V. unguiculata* is mostly consumed in Cijambu for fresh *Lalab* and boiled *Lalab*, or ingredients in *Lotek*, *Karedok*, *Sayur*, *Tumis*, and *Lodeh*.

As can be seen from Table 1, in general, various *Lalab*, including *B. oleracea*, *C. sativus*, *L. flava*, *C. caudatus*, *V. unguiculata* and *P. vulgaris*, are also commonly consumed by the people of Cijambu, almost the same as those commonly consumed by the Sundanese people in Bogor, Cianjur, and Tasikmalaya (Amrinanto et al. 2019; Hernawati et al. 2022).

Supporting health and food sovereignty

Traditionally, the habit of the people of Cijambu Village to consume various types of vegetables, *Karedok*, *Lotek*, *Acar*, *Asinan*, and soups *(Sayur/Angeun)* is very good for supporting the health and food sovereignty of the village community. This is because of the various types of vegetable plants commonly consumed by the people of Cijambu Village. Many of them are also commonly used as ingredients for traditional medicines by many villagers in West Java. For example, of the 67 landraces (65 species) representing 27 families of vegetable plants documented in Cijambu Village, 39 species representing 18 families of which are commonly used for traditional medicines by rural people in Cibunar Village and Cibeuirih Village, Rancakalong District, and Karangwangi Village, Ciajur, West Java (Table 4).

Table 2. Various vegetables are commonly used for distinctive Sundanese foodstuffs of Cijambu Village, Sumedang District, West Java, Indonesia

Vegetable Plants	Name of Sundanese Foodstuffs
Allium cepa L	*Tumis/Oseng Iwung, Petis/Rujak Kangkung, Lodeh, Sayur Haseum/Sayur Asem*
Allium fistulosum L.	*Tumis/Oseng*
Allium sativum L.	*Tumis/Oseng, Karedok, Lotek, Tumis/Oseng Iwung, Petis/Rujak Kangkung, Lodeh, Sayur Haseum/Sayur Asem*
Alpinia galanga (L.) Willd.	*Tumis/Oseng Iwung, Lodeh, Sayur Haseum/Sayur Asem*
Amaranthus tricolor L.	*Lotek, Acar, Sayur/Angeun Bayem, Tumis/Oseng Bayem, Urab Bayem*
Apium graveolens L.	*Sayur/Angeun*
Arachis hypogaea L.	*Karedok, Lotek, Sayur Haseum/Sayur Asem, Rujak*
Archidendron jiringa (Jack) I.C.Nielsen	*Tumis/Oseng Jengkol, Semur Jengkol*
Artocarpus heterophyllus Lam.	*Sayur/Angeun Nangka, Lodeh Nangka*
Bambusa vulgaris Schrad. ex J.C.Wendl.	*Tumis/Oseng Iwung*
Brassica rapa L.	*Sayur/Angeun Sawi Hejo, Sayur/Angeun Pakcoy/Petsai, Tumis/Oseng Pakcoy/Petsai*
Brassica oleracea L. var *capitata*	*Sayur/Angeun Kol, Tumis/Oseng Kol, Karedok, Lotek, Urab Kubis*
Brassica oleracea L. var *capitata*,	*Sayur/Angeun Keciwis, Tumis/Oseng Keciwis*
Brassica oleracea L. var *italica*,	*Sayur/Angeun Brokoli, Tumis/Oseng Brokoli*
Cajanus cajan (L.) Huth	*Rujak/Sambel Hiris*
Capsicum annuum L.	*Tumis/Oseng Iwung, Petis/Rujak Kangkung, Asinan Bonteng, Sayur/Angeun, Tumis/Oseng*
Capsicum frutescens L.	*Karedok, Lotek, Tumis Iwung, Asinan Bonteng, Sambel*
Carica papaya L.	*Sayur Daun Gedang, Tumis/Oseng Daun Gedang, Urab Daun Gedang*
Centella asiatica (L.) Urb.	*Sayur/Angeun Antanan*
Citrus hystrix DC.	*Karedok, Lotek*
Cocos nucifera L.	*Tumis/Oseng Iwung, Lodeh*
Colocasia esculenta (L.) Schott	*Buntil, Sayur/Angeun Lompong*
Cosmos caudatus Kunth	*Sayur/Angeun Kenikir*
Cucumis sativus L.	*Karedok, Asinan Bonteng, Tumis/Oseng Bonteng, Rujak*
Curcuma longa L.	*Tumis/Oseng Kunyit*
Cymbopogon citratus (DC.) Stapf.	*Tumis/Oseng Iwung*
Daucus carota L.	*Sayur/ Angeun Wortel, Tumis/Oseng Wortel*
Etlingera elatior (Jack) R.M.Sm.	*Sayur Lodeh Kecomrang, Sayur/Angeun Honje, Tumis/Oseng Honje*
Gigantochloa atter (Hassk.) Kurz ex Munro	*Tumis/Oseng Iwung, Sayur/Angeun Iwung*
Gnetum gnemon L.	*Lodeh, Sayur Haseum*
Hydrocotyle sibthorpioides Lam.	*Angeun/Sayur Antanan*
Ipomoea aquatica Forssk.	*Lotek, Petis/Rujak Kangkung, Sayur Angen Kangkung, Urab Kangkung*
Kaempferia galanga L.	*Karedok, Lotek*
Leucaena leucocephala (Lam.) de Wit	*Sayur/Angeun Peuteuy Selong, Tumis/Oseng Peuteuy Selong*
Limnocharis flava (L.) Buchenau	*Tumis/Oseng Genjer (Baeng)*
Luffa acutangula (L.) Roxb.	*Sayur/Angeun Oyong*
Manihot esculenta Crantz	*Sayur Kadedemes/Kulit Ubi Singkong, Sayur/Angeun Daun Sampeu, Tumis/Oseng Daun Sampeu, Urab Daun Sampeu*
Momordica charantia L.	*Sayur/Angeun Paria, Tumis/Oseng Paria, Urab Paria*
Musa acuminata Colla	*Tumis/Oseng Jantung Cau*
Ocimum basilicum L.	*Karedok*
Parkia speciosa Hassk.	*Tumis/Oseng Peuteuy*
Phaseolus lunatus L.	*Sayur/Angeun Kacang Roay*
Phaseolus vulgaris L.	*Sayur/Angeun Kacang Buncis, Tumis/Oseng Kacang Buncis*
*Psophocarpus tetragonolobus (*L.*)* DC.	*Angeun/Sayur Jaat*
Raphanus raphanistrum L.	*Sayur/Angeun Lobak, Tumis/Oseng Lobak*
Sechium edule Jacq Sw.	*Lotek, Lodeh, Sayur Haseum/Sayur Asem, Sayur Angeun Waluh Siem, Tumis/Oseng Waluh Siem*
Solanum lycopersicum L.	*Tumis Iwung, Lodeh, Sayur Haseum/Sayur Asem, Sayur/Angeun, Tumis/Oseng, Sambel*
Solanum melongena L.	*Lodeh, Sayur Angeun Haseum/Sayur Asem, Sayur/Angeun Terong, Tumis/Oseng Terong*
Solanum americanum Mill.,	*Ulukutek Leunca, Tumis/Oseng Leunca*
Solanum torvum Sw.	*Sayur/Angeun Takokak*
Solanum tuberosum L.	*Lotek, Sayur/Angeun Kentang, Sambelan Kentang Mustofa, Sambel Goreng Ati Kentang*
Syzygium polyanthum (Wight) Walp.	*Tumis/Oseng Kunyit, Sayur Haseum/Sayur Asem*
Tamarindus indica L.	*Petis/Rujak Kangkung, Asinan Bonteng, Sayur Haseum/Sayur Asem, Urab Kacang Panjang,*
Vigna radiata (L.) R.Wilczek	*Karedok, Lotek, Sayur/Tumis Toge Kacang Hejo, Urab Toge*
Vigna unguiculata subsp. *sesquipedalis* (L.) Verdc.	*Lotek, Lodeh, Sayur Haseum/Sayur Asem, Sayur/Angeun Kacang Panjang*
Zea mays L	*Lodeh, Sayur Hasem/Sayur Asem*

Table 3. The nutritional content of some species of vegetable plants used to make *Karédok*

Species	Use	Edible ingredients and nutritional content in 100 grams*								
		Calorie (Kcal)	Protein (g)	Fat (g)	Sugar (g)	Ca (mg)	P (mg)	Fe (mg)	Vit. B1 (mg)	Vit. C (mg)
Brassica oleracea L	Basic material	51	2.5	1.1	8.0	100	50	3.4	0.4	16
Cucumis sativus L	Basic material	8	0.2	0.2	1.4	29	95	0.8	0.01	1
Vigna radiata (L.) R.Wilczek	Basic material	34	3.7	1.2	4.3	166	74	0.8	0.09	5
Vigna unguiculata (L.) Verdc	Basic material	31	2.3	0.1	53	60	64	0.6	0.7	46
Solanum americanum Mill.	Basic material	38	1.1	0.3	7.6	7	55	1	0.2	17
Arachis hypogea L	Spice	564	25.5	44.4	25.5	106	390	4.1	0.4	0
Capsicum frutescens L	Spice	120	4.7	2.4	19.9	45	85	2.5	0.24	70
Allium sativum L	Spice	112	4.5	0.2	23.1	42	134	1	0.22	15
Kaempferia galanga L	Spice	-	-	-	-	-	-	-	-	-
Ocimum basilicum L	Spice	43	5.5	0.3	7.5	35	106	1	0.06	30
Citrus hystrix DC	Spice	-	-	-	-	-	-	-	-	-
Arenga pinnata Merr	Basic material	368	0	0	92	75	35	3	0	0
Total		1369	50	50.2	194.6	665	1088	18.2	2.32	200

Source: Department of Health of Indonesia (2018) and Iskandar and Iskandar (2023)

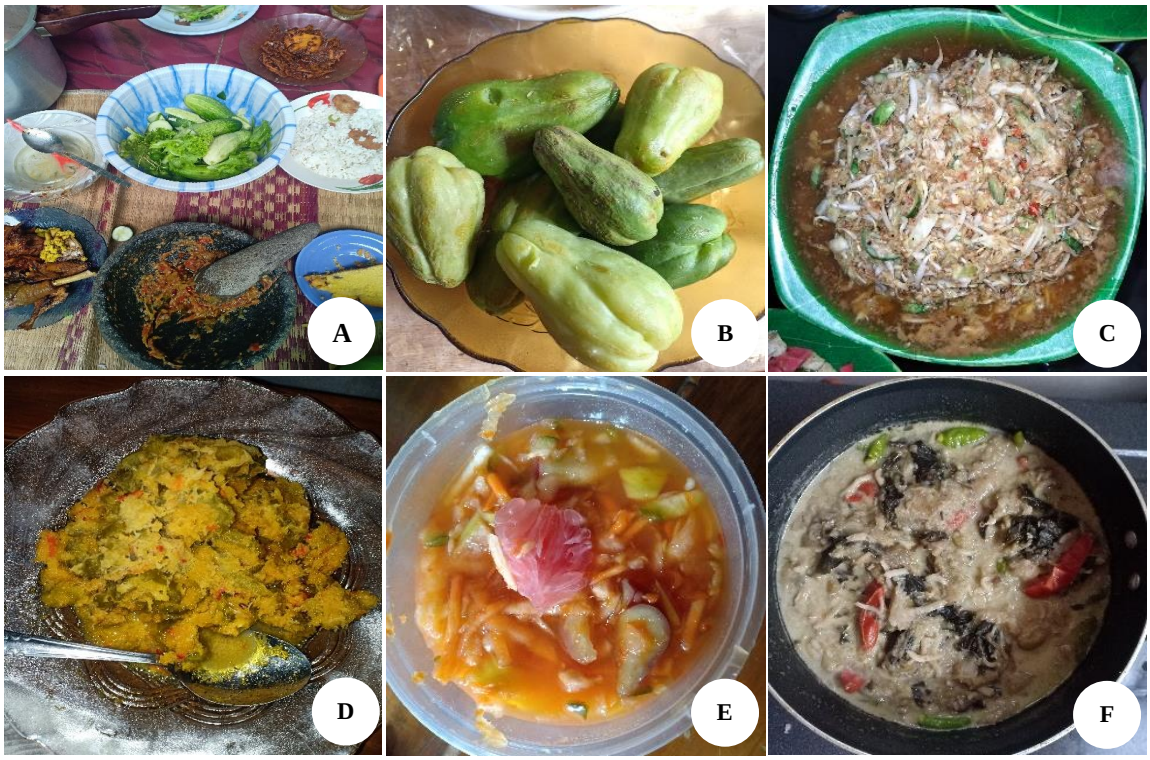

Figure 8. Various types of food stuff serving by Cijambu Village people, Sumedang District, West Java Province, Indonesia. A. Fresh raw salad: *Cucumis sativus* L, B. Cooked vegetable- *Sechium edule* Jacq Sw., C. *Karedok*, D. *Urab Momordica charantia* L, E. *Rujak Cucumis sativus* L, and F. *Sayur/angeun Collocalia esculenta* (L.) Schott

Furthermore, Table 4 shows that most vegetable plants are utilized in Cijambu Village, including *A. cepa*, *A. fistulosum*, *A. tricolor*, *A. graveolens*, *A. hypogaea*, *A. jiringa*, *C. annuum*, *C. frutescens*, *C. papaya*, *C. asiatica*, *C. esculenta*, *C. longa*, *C. citratus*, *G. gnemon*, *K. galanga*, *L. leucocephala*, *L. acutangula* and *M. esculenta* are also categorized as medicinal plants based on scientific (ethical) views (Table 5).

According to Table 4, for example, *A. cepa* is traditionally used as an ingredient for traditional medicine to treat various diseases, such as prickles and hemorrhoids in Cibunar Village, Sumedang; and heat, flue, eyes in Nagarawangi Village, Sumedang, and fever wound in Karangwangi, Cianjur (Iskandar et al. 2020; 2023; Ramadhani et al. 2021). Meanwhile, based on scientific knowledge, the pharmacological activities of *A. cepa* have been determined by research as including antioxidants, antifertility, anti-carcinogenic, analgesic, antiplatelet, anti-inflammatory, anti-hypertensive, diuretic, fibrinolytic, antihelminthic, hypolipidemic properties, antidiabetic, immunoprotective effect, and cardiovascular disease (Barti et al. 2022) (Table 5).

Table 4. Various vegetable plants are also commonly used as traditional medicines by rural people of West Java, Indonesia

Species and Family	Vernacular Name	Edible Vegetable Plant		Traditional Medicinal Plants Used		
		Part Used	Main Used	Cibunar[1]	Nagarawangi[2]	Karangwangi[3]
Allium cepa L., Amaryllidaceae	*Bawang Beureum*	Bulb	Spice	Bulb: prickles, hemorrhoids	Bulb: heat, flu, eyes	Bulb: fever, wound
Allium sativum L., Amaryllidaceae	*Bawang Bodas*	Bulb	Spice		Bulbs: toothache	Bulb: high blood pressure
Alpinia galanga (L.) Willd., Zingiberaceae	*Laja*	Rhizome	Spice	Rhizome, stem, shoot: skin fungus infection		Rhizome: cough
Amaranthus tricolor L., Amaranthaceae	*Séngang*	Leaf	Cooked			Leave: anemia
Apium graveolens L., Apiaceae	*Salédri*	Leaf	Spice	Leaf: high blood pressure		Leaves: high blood pressure
Arachis hypogaea L., Fabaceae	*Suuk*	Seed	Spice			Seed: postpartum healing
Archidendron jiringa (Jack) I.C.Nielsen, Fabaceae	*Jengkol*	Fruit	Fresh	Bark, leaves buds, shells, fruit skin: toothache, ulcers, black hair		Fruit peel: diabetes
Artocarpus heterophyllus Lam., Moraceae	*Nangka*	Fruit	Cooked			Leaves: gastritis, cough
Bambusa vulgaris Schrad. ex J.C.Wendl., Poaceae	*Awi*	Shoot	Cooked	Stem water: eye pain, cough		
Capsicum annuum L., Solanaceae	*Cabé*	Fruit	Spice	Fruit: cut wound		Fruit: wounds
Capsicum frutescens L., Solanaceae	*Céngék*	Fruit	Spice	Leave: children's fever		
Carica papaya L., Caricaceae	*Gedang*	Leaf	Cooked	Fruit, leaves buds, sap, roots: toothache, sprue, strength, wound		Root: malaria, kidney disease, rich breastfeeding produce
Centella asiatica (L.) Urb., Apiaceae	*Antanan Gedé*	Leaf	Cooked	Leave: cough, lumbago, dysentery	Leave: ulcer, gout, rheumatic	Leaves: wound, gastritis
Cocos nucifera L., Arecaceae	*Kalapa Héjo*	Fruit	Spice	Bark, roots, fruit flesh: dysentery, itchy		
Colocasia esculenta (L.) Schott, Araceae	*Taleus*	Leaf, stem	Cooked	Tuber: bitten by a snake		
Cucumis sativus L., Cucurbitaceae		Fruit	Fresh	Fruit: high blood pressure, beauty		
Curcuma longa L., Zingiberaceae	*Konéng Temen*	Rhizome	Spice	Rhizome: gastritis, eliminate the body odor of new women giving birth	Rhizome: ulcer medication	Rhizome: gastritis, stomachache
Cymbopogon citratus (DC.) Stapf., Poaceae	*Séréh*	Leaf	Spice	Leave, root: fever, increased urine frequency of children		Leaves: toothache
Gnetum gnemon L., Gnetaceae	*Tangkil*	Fruit, leaf	Cooked	Leave-anemia		
Ipomoea aquatica Forssk., Convolvulaceae	*Kangkung*	Leaf	Cooked	Leaves, stem: anemia		
Kaempferia galanga L., Zingiberaceae	*Cikur*	Rhizome	Spice	Rhizome: bruise, gout		
Leucaena leucocephala (Lam.) de Wit, Fabaceae	*Peuteuy Selong/ Lamtoro*	Fruit	Cooked			Rhizome: bruised
Luffa acutangula (L.) Roxb., Cucurbitaceae	*Kukuk*	Fruit	Cooked			Seed: diabetes
Manihot esculenta Crantz, Euphorbiacea	*Sampeu*	Leaf	Cooked	Tuberous root, shoot: stomach ache, iris sores, anemia, eye pain		
Manihot esculenta Crantz, Euphorbiaceae	*Sampeu*	Leaf		Leave: low blood medicine, ulcer.		
Momordica charantia L., Cucurbitaceae	*Paria*	Fruit	Cooked	Fruit, leaves: gastritis, appetite, hair loss, hernias		Tuber: anemia, gastritis
Musa acuminata Colla, Musaceae	*Kolé*	Flower	Cooked			
Nasturtium microphyllum (Boenn.) Rchb., Brassicaceae	*Salada Aér*	Leaf	Fresh			Leaves: fever, diabetes
Ocimum basilicum L., Lamiaceae	*Surawung*	Leaf	Fresh	Leaves: odor	Leave: cough	
Parkia speciosa Hassk., Fabaceae	*Peuteuy*	Fruit	Fresh	Leaves, shoot: ulcers, ulcers, eczema		Leaves: dermatitis
*Psophocarpus tetragonolobus (*L.*)* DC., Fabaceae	*Kicipir*	Fruit	Fresh	Seed: anemia		

Solanum lycopersicum L., Solanaceae	*Tomat*	Fruit	Cooked	Fruit: tonsils, face smoothness	
Solanum melongena L., Solanaceae	*Térong*	Fruit	Fresh	Fruit: headache, skin fungus infection	
Solanum americanum Mill., Solanaceae	*Leunca*	Fruit	Fresh	Fruit, leaves: appetite	
Solanum torvum Sw., Solanaceae	*Takokak*	Fruit	Cooked	Fruit: body strength, rheumatism, leucorrhoea	
Syzygium polyanthum (Wight) Walp., Myrtaceae	*Salam*	Leaf	Spice	Leave: high blood medication	Fruit: high blood pressure
Vigna radiata (L.) R.Wilczek, Fabaceae	*Kacang Héjo*	Fruit	Cooked		Leaves: high blood pressure
Vigna unguiculata subsp. *sesquipedalis* (L.) Verdc., Fabaceae	*Kacang Panjang*	Fruit	Fresh		
Zea mays L., Poaceae	*Jagong*	Fruit	Cooked	Fruit seed: diarrhea	Seed: gastritis

Source: [1]Iskandar et al (2023), [2]Rhamadani et al (2021), [3]Iskandar et al. (2020)

Table 5. Various vegetable and medicinal plants of the Sundanese community and based on the scientific view

Species	**Scientific View**	**References**
Allium cepa L	*A. cepa* contains many important phytoconstituent useful for our health. Secondary metabolite acquires different biological properties. It possesses various pharmacological activities, including antioxidants, antifertility, anti-carcinogenic, analgesic, antiplatelet, anti-inflammatory, anti-hypertensive, diuretic, fibrinolytic, antihelminthic, hypolipidemic properties, antidiabetic, immunoprotective effect, and cardiovascular disease. *A. cepa* contains several biological potencies, such as antibiotic effect. The above review shows that phytoconstituent and pharmacological activities can protect Humans against various diseases.	Barti et al. (2022)
Allium fistulosum L	*Allium* plants, including *A. fistulosum*, are important due to their nutritional composition, antioxidant properties, and uses as flavoring agents, fragrance and therapeutics, and medicinal food. Consumption of onion and related *Allium* is associated with reduced blood lipids, cholesterol, and platelet activity, contributing to decreased risk of cardiovascular disease.	Singh and Ramakrishna (2017)
Amaranthus tricolor L	The *A. tricolor* herb has a wide spectrum of pharmacological potentials and significant natural compounds that pave the way toward advanced drug discovery and formulations.	Srivastava (2017)
Apium graveolens L	The *A. graveolens* have antimicrobial, antiparasitic, cardioprotective, gastroprotective, neuroprotective, hypolipidemic, cytotoxic, antioxidant, anti-inflammatory, and anti-infertility activities and can be a potential medicinal plant.	Khairullah et al. (2021)
Arachys hypogaea L	The *A. hypogaea* roots are a rich source of antioxidants. It has numerous compounds with great biological activities, i.e., anticancerous, anti-inflammatory, and sedative agents.	Ullah et al. (2019)
Archidendron jiringa (Jack) I.C.Nielsen	The *A. jiringa*'s pods are a good source of natural antioxidants. Pure compounds showed strong activity in the DPPH assay. The plant has a potential source for bioactive substances that supports several pharmaceutical uses and therapeutic value.	Lubis et al. (2018)
Capsicum annuum L & *Capsicum frutescens* L	*C. annuum* and *C. frutescens* are promising medicinal plants with wide pharmacological activities that could be utilized in several medical applications due to their effectiveness and safety.	Al-Snafi (2015)

Carica papaya L	*C. papaya*'s leaves, stem, fruits, and seeds contain different chemical constituents such as Alkaloids carpain, pseudocarpain, dehydrocarpaine I and II, choline, carposide, vitamin C and E. Carposide and an enzyme myrosin, sinigrin, carpaine, benzyl isothiocyanate, benzyl glucosinolate, glucotropaeolin benzyl thiourea, hentriacontane, β-sitosterol, caricin, leaves related alkaloids, flavonoids, saponins, tannins, cardiac glycoside, anthraquinones and cardenolides, etc. Many of the pharmacological activities have been done on the papaya plants. The seeds of this plant have been reported to have antimicrobial and antihelmintic activities.	Srivastava and Singh (2016)
Centella asiatica (L) Urb	*C. asiatica* consists of several phytocompounds like saponins, glycosides, phytosterols, and flavonoids. Among these phytocompounds, saponins, i.e., asiaticoside, are important for different pharmacological activities. It was found that asiaticoside is the main phytocompound that helps wound healing. It also helps improve neurodegenerative disorders, i.e., Alzheimer's, as it improves memory. Therefore, it can be used as a drug to treat neurodegenerative disorders.	Roy and Bharadvaja (2017)
Colocasia esculenta (L) Schott	*C. esculenta* leaf extract has been proven to be a medicinal active plant for treating various health issues. Chemically, it contains various biologically active phytoconstituents such as flavonoids, sterols, glycosides, and other micronutrients.	Keerty and Joshi (2019)
Curcuma longa L	*C. longa* contains curcumin, an important anti-cancer, anti-inflammatory and photo-protection role that may be closely linked to its antioxidant properties.	Bulbula (2021)
Cymbopogon citratus Stapf	*C. citratus* contains various phytoconstituents, such as flavonoid and phenolic compounds, terpenoids, and essential oils, which may be responsible for the different biological activities.	Shah et al. (2016)
Gnetum gnemon L	The *G. gnemon* seeds have more potential as anti-cancer. The ethyl acetate fraction had the highest antioxidant and cytotoxic effect of the three fractions compared to the water and n-hexane fractions.	Sukohar et al. (2022)
Kaempferia galanga L	The *K. galanga* has ninety-seven compounds from its rhizome, including terpenoids, phenolics, cyclic dipeptides, flavonoids, diarylheptanoids, fatty acids, and esters. Modern pharmacology studies revealed that herb extracts or secondary metabolites possessed anti-inflammatory, antioxidant, anti-tumorous, anti-bacterial, and anti-angiogenesis effects closely related to their abundant ethnomedicinal uses.	Wang et al. (2021)
Leucaena leucocephala (Lam.) De Wit	Seed extract from *L. leucocephala* has antidiabetic and antioxidant activities. The antioxidant activity is likely due to the phenolic content. An application of this extract should be considered as it can affect renal function by reducing albumin levels, alkaline phosphatase (ALP), and total protein.	Chowtivannakul et al. (2016)
Luffa acutangula (L.) Roxb	*L. acutangula* has been used in jaundice, diabetes, hemorrhoids, dysentery, headache, ringworm infection, and leprosy. Over 50 chemical compounds have been isolated from a plant, comprising flavonoids, anthraquinones, proteins, fatty acids, saponin triterpene, volatile components, and other phytoconstituents. Crude extract of the plant and its isolated compounds possess broad pharmacological activities such as antidiabetic, hepato-protective, antiulcer, anti-cancer, immunomodulatory, antihyperlipidemic, antioxidant, antimicrobial, CNS depressant, analgesic, and anti-inflammatory.	Panicker (2020)
Manihot esculenta Crantz	*M. esculenta* is commonly used for roots and leaves. In Nigeria, it treats ringworm, tumor, conjunctivitis, sores, and abscesses. Leaves have also been used against many disorders, such as rheumatism, fever, headache, diarrhea, and loss of appetite. Leaves of this plant also reportedly have shown anti-hemorrhoid, anti-inflammatory12, and antimicrobial activity.	Bahekar and Kale (2013)

Similarly, other vegetable plants, such as *Jengkol* (*A. jiringa)*, which are usually consumed by the people in fresh raw salad vegetable form, consumed with chili sauce (*Sambel*) or cooked with some spices (Table 2), are also used as ingredients for traditional medicine. For instance, in the Sundanese community in Cibunar Village, Sumedang, parts of the bark, leaves buds, shells, and fruit skin of *Jengkol* are commonly used to treat toothache and ulcers and make black hair. In addition, for the people of Karangwangi Village, Cianjur, the fruit peel part is commonly used for postpartum healing for mothers who have just given birth (Iskandar et al. 2020; Iskandar and Iskandar 2023) (Table 4). While scientifically, the pods of *A. jiringa* contain an active phenolic compound such as methyl gallate, which has high antioxidant activity. Therefore, it can be used as a natural source of antioxidants (Lubis et al. 2018) (Table 5).

To sum up, based on the tradition of Sundanese people usually consume various *Lalab*, fresh *Lalab*, boiled and made special meals, it can prove better for both health conditions and disease prevention (Amrinanto et al. 2019; Kodir and Moektiwardoyo 2022). Traditionally, the Sundanese rural people are similar to other rural people in Asia, including Lesser Himalaya Pakistan, in that they commonly utilize and consume various vegetables to cure various ailments, but this traditional knowledge has severely eroded due to traditional change in the lifestyle of local inhabitants (Abbasi et al. 2013).

In addition, the habit of the Sundanese people to consume various types of vegetables produced by various agroecosystems, especially the traditional agroforestry homegarden, can assist food security, a situation that exists when all people, at all times, have physical, social, and economic access to sufficient, safe and nutritious food that meets their dietary needs and preferences for active and healthy life (Amalia and Marta 2018). This is because the traditional homegarden which is traditionally planted by multispecies of annual and perennial plants, a combination of a variety of economically useful plants including trees, shrubs, vines, and herbaceous species, often in association with livestock, in small landholdings around or adjacent to the home. The homegarden has various ecological and social-ecological functions, including the habitat of animals, including birds and beneficial insects; nutrient recycling; minimizing soil erosion; pest management and improving pollination and carbon sequestration potential; and reducing the vulnerability of climate changes. Therefore, these fulfill most households' basic food and nutritional needs (Mellise et al. 2018; Tangjam et al. 2022).

Moreover, homegarden can potentially contribute to achieving Sustainable Development Goals (SDGs). Specifically, the synergistic prospects concern food security, agro-biodiversity conservation, and designing sustainable food systems (SDG 2) (Sharma et al. 2022). However, due to the intensive penetration of the market economy into rural areas and the emergence of the commercialization of vegetable crops in rural areas, some of the community's homegarden, which have a variety of high annual and perennial plant species, were converted to emphasized planting monoculture vegetable crops. Consequently, the change in the vegetation structure of the homegarden, although it provides benefits for increased vegetable production, has several negative impacts, including increasing various external inputs, such as seeds, inorganic fertilizers, and pesticides that have to be purchased from the market and the cost of farming dramatically increases. In addition, various ecological functions of the homegarden system, including biodiversity conservation, animal habitat, carbon sequestration, and erosion control, may disappear (Prihartini et al. 2018; Iskandar and Iskandar 2023). Therefore, in developing a homegarden and increasing its economic value, various ecological functions that are very good for the environment, such as biodiversity conservation and adaptation to environmental changes, must be properly maintained.

In conclusion, the results of this study demonstrate that it was documented at least 67 landraces (65 species), representing 56 genera, and 27 families of vegetable plants (*Lalab*) are commonly consumed by the Sundanese rural people of Cijambu Village, Sumedang, West Java. These vegetable plants can be classified into three main categories, mainly vegetable sources, part used, and use and processing of vegetable plants. The rural people of Cijambu Village commonly obtain various vegetable plants (*Lalab*) from various sources, including homegarden, gardens, rice fields, *Perhutani* agroforest forest, and other non-farming sources, including markets, village small-shop (*Warung*), and vegetable sellers.

Various parts of plants are usually consumed by the rural people of Cijambu: bulb, flower, fruit, leaf, rhizome, root/tuber, seed, and shoot. Traditionally, the vegetable is commonly consumed: fresh raw salad, cooked vegetables, and spices. At least 12 main or basic types of Sundanese food meals, namely various *Acar, Asinan, Buntil, Karedok, Lodeh, Lotek, Rujak, Sambel, Sayur/Angeun, Semur, Tumis/Oseng*, and *Urab* with a total of 58 kinds of food meals, and 14 various chili sauces (*Sambel*).

The cultural practice of the Sundanese community of consuming vegetable plants (*Lalab*) is the result of a complex interaction between the human social-cultural system and the local ecosystem, which can form the biocultural system. The consumption of the Sundanese rural people of Cijambu is based on Traditional Ecological Knowledge (TEK) and is strongly embedded in tradition. Generally, they habitually consume vegetables locally produced by various agroecosystems, including agroforestry homegarden, which can be considered good for supporting the village community's human health and food sovereignty. Therefore, the ecological wisdom of the Sundanese rural people in consuming a variety of vegetables, and practicing agroforestry farming in the homegarden system, which is strongly based on TEK, must be maintained to support sustainable development goals in Indonesia, such as eliminating hunger, poverty, and protecting the environment.

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