Role of Barangay Garden Plants during COVID-19 General Community Quarantine in Baguio City, Philippines

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Research

Abstract

Background: Initiatives on gardening and the use of garden plants in barangays were observed especially during the declaration of community quarantine and lockdown in Baguio City, Philippines due to the Coronavirus disease (COVID-19) pandemic. This study primarily aimed to determine the types of plants (vegetable, ornamental, medicinal, and fruit-bearing), frequency of occurrence, parts used, benefits and importance based on use-categories (as raw food, processed or preserved food, forage, condiment or ingredient, decoration, offertory, medicinal).

Methods: Descriptive research design and method were utilized. The collection of data was done through an online survey and interview of key informants per barangay from February to April 2021. Descriptive statistics were applied to the data gathered. Ethnobotanical indices such as use value, informant consensus factor and relative frequency of citation were calculated.

Results: A total of 178 plant species were found belonging to 62 families. Vegetables are the most widely cultivated plants. The plants provide many benefits such as economic enterprise, food security, help in saving money, and improved health among others. Tomato is the most common food plant eaten raw, used as a condiment or ingredient and processed or preserved. Meanwhile, 'sayote' as forage for animals, strawberry for offerings, orchid tree for decoration. Oregano was utilized as medicine to treat cough and sore throat which are common symptoms of COVID-19.

Conclusions: Overall, the different kinds of vegetable, fruit-bearing, and medicinal plants found in the different barangays are essential and helpful in the community during the pandemic.

Keywords: barangay garden, use value, garden plant, community quarantine, new normal

Background

The World Health Organization (2020) declared Coronavirus disease (COVID-19) a public health emergency. The outbreak infected 13,575,158 people worldwide, with 584,940 deaths reported in 17 July 2020 (WHO 2020 as cited in Prasetyo *et al.* 2020). The situation aggravated and rapidly turned into a pandemic. Lockdowns started in China followed by other countries such as Italy, Spain, France, India, Singapore, Thailand etc. (Koh 2020). These can be an effective strategy in response to the pandemic to slow down the transmission of the severe acute respiratory syndrome coronavirus 2, also known as SARS-CoV-2 (Eyawo *et al*. 2021).

On January 2020, the first positive case in the Philippines involving a 38-year-old female from Wuhan, China, was confirmed (Bahadur *et al.* 2020, Reuters 2020). The Inter-Agency Task Force on Emerging Infectious Diseases (IATF) was created to prevent and mitigate the spread and impacts of the disease in the country (Talabis *et al.* 2021). Community quarantine was implemented in the country, starting in Luzon and other parts (WHO 2020). It refers to the "restriction of movement within, into, or out of the area of quarantine of individuals, large groups of people, or communities, designed to reduce the likelihood of transmission of COVID-19 among persons in and to persons outside the affected area". In contrast, General Community Quarantine (GCQ) refers to the "implementation of temporary measures limiting movement and transportation, regulation of operating industries, and presence of uniformed personnel to enforce community quarantine protocols" (IATF 2020). Mass quarantine is a method in many countries to prevent and control the spread of the disease (Patel *et al.* 2020).

The city of Baguio consisting of 129 barangays was under GCQ in March 2020 through Executive Order No. 065-20 (Baguio City Guide 2020, Lobien & Agoot 2020). This situation resulted in the limited movement of people and restricted them at home. Work-from-home arrangements were adopted, while mass transportation was limited. The provision of food and health services, however, was regulated. Although it was good to prevent the further spread of the severe acute respiratory syndrome coronavirus 2, food security issues were raised. Moreover, problems related to physical, social, and mental health, unemployment, also stress from income loss for many affected families were reported (Blustein & Guarino 2020).

Gardening has become an initiative among households affected by COVID-19 (Montefrio 2020). It refers to cultivating vegetables, fruits, crops, spices, herbs, ornamental and medicinal plants in a given land for income generation and food sources (Galhena *et al.* 2013). During a crisis, it has the potential to improve health and well-being (Kingsley *et al*. 2022). It is a farming system with various social, economic, and physical functions, but mainly as the food supply for households and the community (Lal 2020). The activity serves as a stress reliever, a form of physical activity, and can boost connection with nature (Alamada *et al* 2021, Cerda *et al* 2022, Egerer *et al* 2022). Gardens in barangays are essential for conserving useful plant species and ecological services for the rural and urban poor. Wider spaces for gardening found in rural areas serve as an advantage. Open areas permit the growth of various kinds of fruits, vegetables, and even herbs. According to the Department of Agriculture (2020), food must be available, adequate, and affordable to every household. As a result, various food production initiatives and strategies were conducted under "Ahon Lahat," "Pagkaing Sapat" or ALPAS Covid-19 "Plant Plant Plant" program, such as vegetable seed distribution and backyard gardening (Quitasol 2020). Thus, the benefits rural dwellers gain from planting rely on their gardens' composition, diversity, and structure (Neulinger *et al.* 2013). In contrast to rural areas, urban areas have lesser land use/ coverage allotted for crops and brushlands, making gardening more challenging.

Baguio City is an example of a highly urbanized area that, despite the limited space, implements what is known as "urban farming"—also known as urban agriculture, which refers to "growing, processing and distribution of food crops and animal products in the urban environment, through the local community" (AgriFarming 2021). It gives people supplementary food, medicines, and spices, among others (Mekonen *et al.* 2015).

Up to the present, no studies have been published on the inventory of plants specifically on the kinds and their uses in the barangays of Baguio City during the GCQ due to COVID-19 from February to April 2021. Therefore, this study was conducted specifically to determine the types of plants (vegetable, ornamental, medicinal, and fruit bearing), frequency of occurrence, parts used, benefits and importance based on use-categories (as raw food, processed or preserved food, forage, condiment or ingredient, decoration, offertory, medicinal) in the barangays. Identifying the plants found in the local gardens and their uses is necessary to promote awareness among residents in the barangays on the significant role of plants, especially in addressing health problems and their proper management to benefit the entire community.

Materials and Methods

Study area

Baguio is a chartered city in Benguet province. It is located approximately 250 kilometers north of Metro Manila with a land area of about 57.49 km^2 (49 km^2 enclosed in the perimeter of 30 km^2). Specifically, 16°25'N and 12°36'E in Luzon, Philippines. It houses politically and administratively divided into 129 barangays (villages) (Fig. 1).
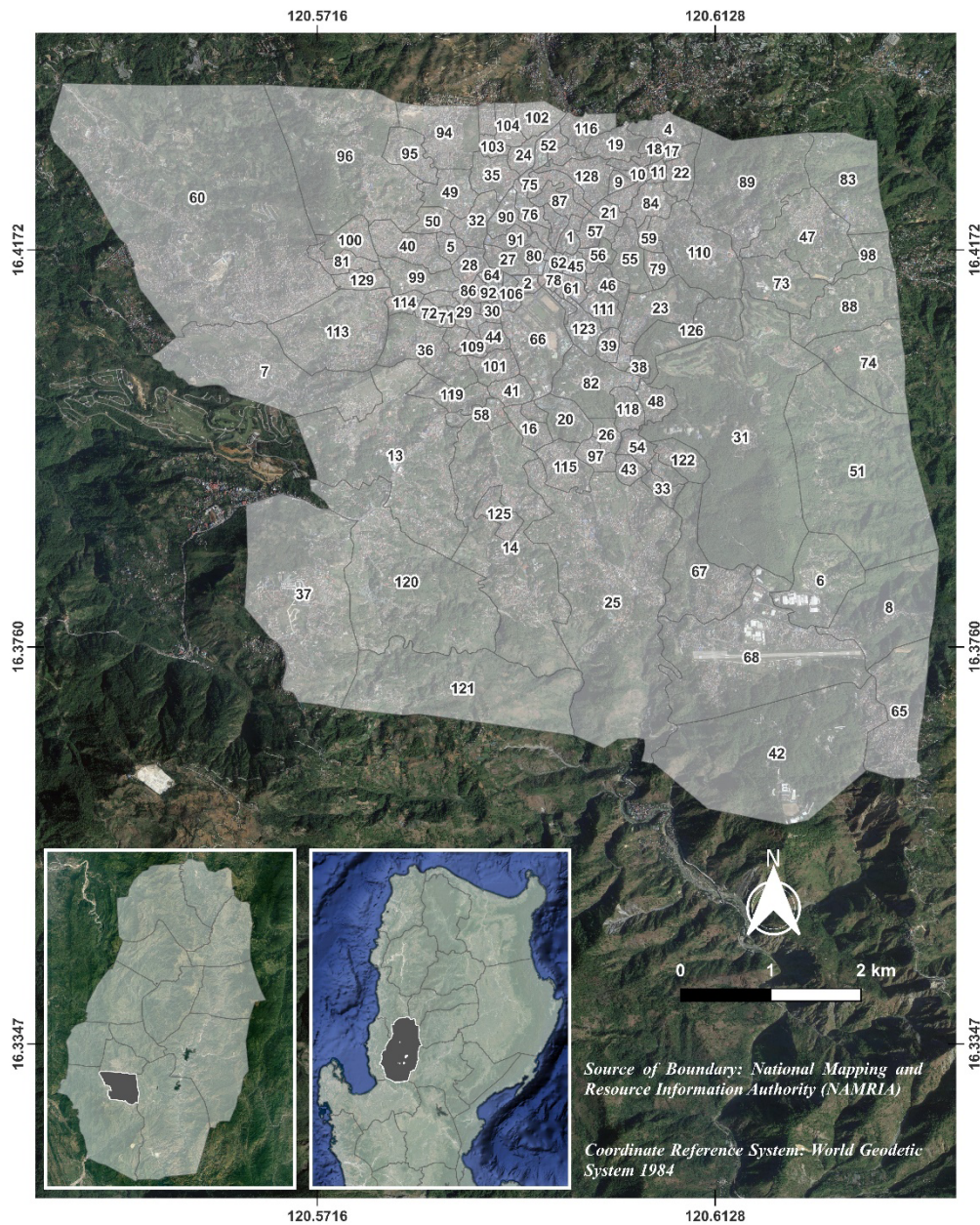

Figure 1. Map of Baguio showing the location of different barangays

The land use of Baguio city historically focused on pastures and grazing lands with a small portion of the land planted with coffee. However, as urbanization grew, reserves for forests and watersheds occupied a total area of 521.23 ha while industrial areas and parks took up about 130.39 ha and 48.83 ha respectively. Vacant/ idle open areas were estimated to be 1951.8 ha with reservations on private claims and ownerships. The rest of the area was reported to be utilized either as an airport, abattoir, dumping site or a cemetery (Estoque & Murayama 2013).

Data collection and analysis

The study utilized a descriptive research design. Data was initially collected in February to April 2021 after obtaining an ethical clearance (2021-008) from the Saint Louis University- Research Ethics Committee. A follow-up survey was conducted until April 2022. A qualitative method involving semi-structured questionnaire and interviews through emails, google forms,

and chats through Facebook messenger were done in the online survey of this study. The interviews will be carried out upon approval of the barangay captain after submission and online processing of formal letter/email and research proposal (electronic copy) via email or sent to barangay fb page for easier and faster communication.

The semi-structured questionnaire has been constructed by the group based on the study by Philpott (2020). This was used as a guide with permission from the author. Some modifications were made to fit in this study. Briefly, the following key information was obtained: presence or absence of a barangay garden, plant information such as vernacular names, uses, features, and frequency of the plants found. All respondents were given enough time to answer the questions. The questions asked were as follows:

GUIDE QUESTIONS FOR INTERVIEW/ONLINE SURVEY

Q1: What are the types of plants grown in your barangay garden? Select or Check all that apply.

□ Medicinal plants
□ Ornamental plants
□ Vegetable plants
□ Fruit-bearing plants

Q2: Which crops do you grow in your barangay garden? Select or Check all that apply.

□ Tomato	□ Beans	□ Corn	□ Asparagus
□ Cabbage	□ Broccoli	□ Bitter melon	□ Carrot
□ Lettuce	□ Squash	□ Potato	□ Mustard
□ Cucumber	□ Eggplant	□ Oregano	□ Thyme
□ Strawberry	□ Lavender	□ Mint	□ Garlic

List other crops you grow: (If not listed above)

_____

Q3: Which flowers or ornamentals do you grow in your garden? Select or Check all that apply.

□ Sunflower	□ Cosmos	□ Rose	□ Dahlia
□ Orchid	□ Peace lily		

List other ornamentals you grow: (If not listed above)

_____

Q4: How many kinds of plants are grown in your garden?

□ 1-10 plants
□ 11-30 plants
□ 31-50 plants
□ More than 50 plants

Q5: What benefits can you get from your garden? Select or Check all that apply.

□ Food security
□ Helps in saving money
□ Improves health
□ Enhance family bonds
□ Exercise
□ Stress reliever
□ Social well-being
□ Helps combat loneliness
□ Environmental quality
□ Others: _____

Q6: What part of the plants are beneficial? Select or Check all that apply.

□ Leaves
□ Flowers
□ Fruits
□ Roots
□ Stem
□ Seeds

Q7: What is/are the use/s of the plants grown in the garden? Pls. specify. Indicate part/s

Name of Plant	Part/s Used	Use/s
	Choices:	**Choices:**
	A. Leaves	1. Food (Eaten Raw)
	B. Flowers	2. Forage (For animals)
	C. Fruits	3. Offertory
	D. Roots	4. Processed/Preserved
	E. Stem	5. Condiment/Ingredient
	F. Seeds	6. Decoration
		7. Medicine
		(specify health ailment)
For example:	C	1, 2, 4
Mulberry Tree	A	7. Lower blood sugar/ for diabetes
Interpretation: The fruits are eaten raw, for animals to eat, cooked or processed/preserved (jam) while the leaves are used for lowering blood sugar		

Follow-up of responses was carried out with the assistance from the field assistants assigned to the barangays. Collection and identification of selected plants were done with permission and in coordination with the local official who was responsible for maintaining the barangay garden and who also served as the main respondent or key informant per barangay. Only barangays with an existing garden being maintained by the respondent during the survey were included. Verification of plant ID was conducted by the researchers using online plant databases such as Co's Digital Flora of the Philippines (Pelser et al. 2011 onwards), Tropicos (2023), Plants of Southeast Asia (Slik 2009 onwards), StuartXchange (Stuart n.d.), and Plants of the World Online by Royal Botanic Gardens, Kew (POWO 2023). Voucher specimens were deposited at the Braeckman Museum of Natural History in Saint Louis University, Baguio City.

In this study, the separate home gardens owned and managed by households per barangay were not covered. Factors such as light, temperature, pH, soil nutrients, pests, anthropogenic activities among others which may influence the number and uses plants in the barangay gardens were not dealt with in this project.

All the information gathered from the online interview and survey were collated and summarized in tables. Descriptive statistics were utilized in this study, such as frequency, percentage, mean and rank using Microsoft Excel. Ranking of species and their families was done based on quantitative ethnobotanical indices. Use value (UV) which indicates the importance of each plant (UVs) in the locality (Vitalini *et al.* 2013), was computed accordingly using the formula (Tardio & Pardo-de-Santayana 2008):

$$UV = \frac{\Sigma U_i}{N}$$

Where U_i is the number of uses mentioned by each informant i for a given species and N is the total number of informants. The use value of families (UVf) was also derived to indicate importance. The plant or family with the highest UV has the highest use thus, most important.

Relative frequency of citation (RFC) was calculated to determine the perceived significance of each plant mentioned by the participants. A higher RFC value of a plant denotes greater local recognition and suggests that it is often used by a large proportion of the study participants. Where FC or frequency of citation is the number of informants who reported uses of a particular species and N is the total number of informants (Yinebeb *et al.* 2022).
The formula is:

$$RFC = \frac{FC}{N}$$

The level of agreement between information among participants was assessed through computation of the Informant's Consensus Factor (ICF):

$$ICF = \frac{N_{ur} - N_t}{N_{ur} - 1}$$

Where N_{ur} refers to the total number of use reports in each plant use category and N_t is the number of taxa used in that category (Heinrich *et al.* 1998). This is used to evaluate the homogeneity of knowledge and consistency of information on the use of plants in various categories. The ICF value ranges from 0-1. High ICF indicates that a small number of plants are used for a specific category and a higher level of consensus or agreement among informants on the use of plants while low values near zero show that informants disagree over which plant to use.

Results and Discussion

Socio-demographic characteristics of respondents

All respondents are knowledgeable about the garden in the barangay. Each informant is at least 18 years old, resident of the barangay for at least a year, and able to read and write in Filipino, English, and any local language. The Punong Barangay, also known as the barangay captain, is the chief executive officer who oversees operations and manages resources (Pasquin 2023). The majority of the barangay captains are male (55%). Both men and women significantly contribute to gardening (El Khateeb *et al.* 2023). However, gardening activity varies between men and women worldwide. In Buea, Cameroon, gardening is a chief supplementary source of food for the household. It is a supplementary source of income for men by growing commercial crops compared to female gardeners who cultivate more food crops (Ngome & Foeken 2012).

The number of recorded occupations was 32 kagawad (31.37%), 30 secretaries or record keepers (29.41%), 20 captains (19.61%), 11 Sangguniang Kabataan (SK) Chairperson (10.78%) and 9 others (8.83%) such as tanod, treasurer among others. According to Pasquin (2023), the barangay kagawad is a council member who works together with the captain by taking various roles in the committees of the barangay to address the needs of the community in areas such as health, education, and infrastructure, among others. Moreover, the SK chairperson is a leader representing the youth members and spearheads activities that actively engage them, such as gardening, clean-up projects, etc.

Type of plants in barangay gardens

Vegetables (31.5%), ornamental plants (23.2%), medicinal plants (24.8%), and fruit-bearing plants (20.5%) are the types of plants found in 102 out of 129 barangays in Baguio City (Figure 2a). Other barangays have no gardens or are under renovation during the survey. Our data shows that vegetables were the main food sources in the barangays. According to Lal (2020), vegetables are nutritious foods and are easiest to grow. Potutan *et al* (2000) emphasize that vegetable gardens may allow families to save. In Sebeta-Awas (Ethiopia), vegetables are the primary source of food (Mekonen *et al.* 2015). On the other hand, fruit-bearing plants are the least kind of plants grown in the barangay gardens. This may be due to some fruit-bearing plants require specific methods for them to grow and be able to produce fruit. This type of plant needs a lot of management attention and sources. Land holding size must also be considered for their growth (Alemu *et al*. 2019).

Diversity of plants per barangay

A total of 102 barangays have gardens managed by the local government unit officials. Barangay Lucnab has the most significant number of kinds of plants cultivated (55) during the GCQ (Table 1). On the other hand, four barangays (Bakakeng North, Country Club Village, Fairview Village, and General Luna, Upper) were recorded as having the lowest number of kinds of plants grown during the survey (only 1) because of unavailability of access to a garden plot or another area suitable for a garden. In addition, some barangays have their person in charge of the garden during the GCQ, the people in charge of the barangay garden may not often go to the garden, affecting the number of plants cultivated.

Ranging from 1-10 kinds of plants was recorded in 54 barangays (52.9%), as shown in Figure 2b. Only 1 barangay (1%) has more than 50 kinds of plants. The number of kinds cultivated greatly depends on land availability (Alemu *et al.* 2019). The majority of the barangays are residential areas thus, urbanized. According to Estoque & Murayama (2012), the resources and natural environment in Baguio City may be affected due to the congestion that arises from the rapid population growth. Moreover, most lands in the city were dedicated to developing built-up areas, resulting in a three-fold increase in its construction at the expense of the forest covers, crop, and brush land.

A total of 178 plant species (102 fruits and vegetables; 76 ornamental) were identified belonging to 62 families (Table 2). The most recorded families were Araceae and Asteraceae (13 species), followed by Lamiaceae (12 species), Fabaceae (11 species), Asparagaceae (10 species), Cucurbitaceae and Brassicaceae (8 species), Solanaceae and Amaryllidaceae (6 species), Poaceae and Rutaceae (5 species) among others. Araceae and Asteraceae families are mostly ornamental plants used mainly for decoration because of their flowers (Ghazal 2019), and some are commonly utilized as food, such as lettuce (Asteraceae) and gabi (Araceae).
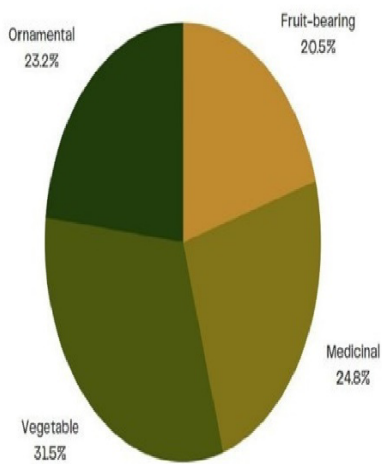
Figure 2a. Percentage of medicinal, ornamental, vegetable and fruit-bearing plants
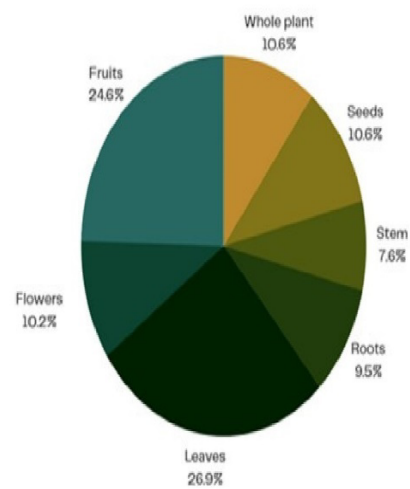
Figure 2c. Percentage on plant parts used
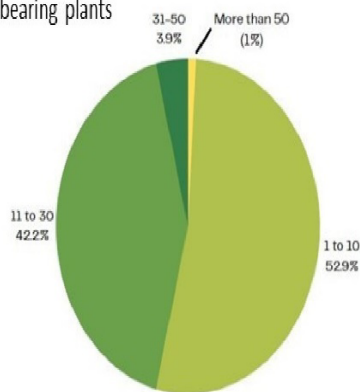
Figure 2b. Percentage on total kinds of plants per barangay
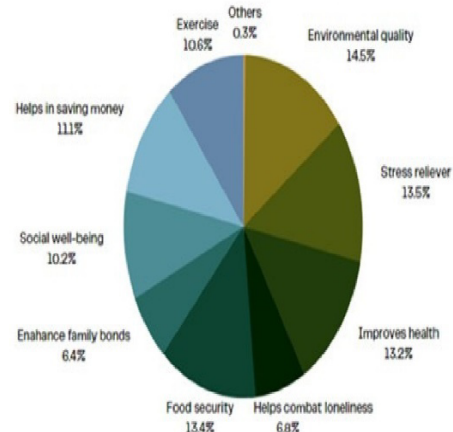
Figure 2d. Percentage on the benefits of barangay garden plants

Table 1. Diversity of plants per barangay (from highest to lowest)

Name of Barangay	No. of Kinds	Name of Barangay	Kinds of plants	Name of Barangay	No. of Kinds
Lucnab	55	Atok Trail	14	Lualhati	8
Modern Site, West	41	Balsigan	14	Magsaysay Private Road	8
Happy Homes	33	Rock Quarry, Lower	14	MRR- Queen of Peace	8
Manuel A. Roxas	32	Sanitary Camp, North	14	San Luis Village	8
Middle Quezon Hill Subdivision	32	Brookside	13	Dontogan	7
Aurora Hill Proper	30	Kias	13	Pinsao Proper	7
Legarda-Burnham-Kisad	29	Magsaysay, Lower	13	Pucsusan	7
Rock Quarry, Upper	29	Phil-Am	13	Camp 7	6

Bayan Park Village	27	Quirino Hill, West	13	Camp Allen	6
Market Subdivision, Upper	27	Saint Joseph Village	13	General Emilio F. Aguinaldo	6
Rock Quarry, Middle	24	City Camp Proper	12	Honeymoon	6
Bayan Park West	23	Salud Mitra	12	Santo Rosario	6
Happy Hollow	23	San Roque Village	12	Session Road	6
Military Cut-off	23	Brookspoint	11	Slaughter House Area	6
Lopez Janea	21	Dominican Hill-Mirador	11	Imelda Village	5
Palma-Urbano	21	Outlook Drive	11	Pinget	5
Quezon Hill, Upper	21	Quirino Hill, Lower	11	Quirino Hill, East	5
San Antonio Village	21	Cabinet Hill-Teacher's Camp	10	Teodora Alonzo	5
Engineer's Hill	20	General Luna, Lower	10	Bagong Lipunan	4
Padre Burgos	20	Hillside	10	Campo Filipino	4
Santo Tomas School Area	20	Lourdes Subd. Extension	10	Guisad Sorong	4
Ambiong	19	Scout Barrio	10	Kabayanihan	4
Ferdinand	19	Marcoville	9	Poliwes	4
Fort del Pilar	19	Bayan Park East	9	Dizon Subdivision	3
Lourdes Subd. Lower	19	City Camp Central	9	Kagitingan	3
Lourdes Subd. Proper	19	Liwanag-Loakan	9	Pinsao Pilot Project	3
Imelda R. Marcos	18	Modern Site, East	9	Quirino Hill, Middle	3
Victoria Village	18	Pacdal	9	Santo Tomas Proper	3
Bonifacio-Caguioa-Rimando	17	San Vicente	9	Camp 8	2
Asin Road	17	Alfonso Tabora	8	Cresencia Village	2
Dagsian, Upper	17	Dagsian, Lower	8	Bakakeng North	1
Aurora Hill, South Central	16	Holy Ghost Extension	8	Country Club Village	1
DPS Area	15	Holy Ghost Proper	8	Fairview Village	1
Guisad Central	15	Irisan	8	General Luna, Upper	1

Commonly used parts and their benefits

Plants are essential in providing food, clean air, and other ecosystem functions, and every part of it has its usage. In this study, the leaves (26.9%) are commonly used in the barangays followed by the fruits (24.6%), the whole plant and seeds (10.6%), flowers (10.2%), roots (9.5%), and stem (7.6%) being the least used (Figure 2c).

The majority of the barangays responded that leaves are the commonly used plant parts. According to Fernando (2012), leafy parts of plants are important sources of vitamins and minerals. Consumption of leafy vegetables provides a source of nutrients to the residents. The fruits were the second most used part since these are readily eaten raw, cooked, or preserved. Several barangay respondents answered flowers (10.2%), which were used chiefly for decorations. Results of the study conducted by Huss *et al.* (2018), show that flowers provide aesthetic pleasure and can make people happy. On the other hand, the roots provide support and stability to the plant shoots to avoid soil erosion. Meanwhile, the stem is the least used since it connects to all other parts of the plant, which when used, may impede the transport of water and nutrients within the plant (Riedell & Schumacher 2013).

In general, garden plants are advantageous in barangays as shown in Figure 2d. The main benefits are environmental quality (14.5%), stress reliever (13.5%), food security (13.4%), and improved health (13.2%). Health status and quality of life are affected by the environment. In comparison to the study by Lee (2017), gardens serve as vegetation landscapes and community projects. Moreover, are good places for recreation, healing, and restoration. Our findings indicate that barangay gardening held many health benefits, including relieving stress, food security, improving health, exercise, and social well-being. Aside from the health benefits, barangay gardens enhance food security and provide opportunities for saving money. According to Carney *et al.* (2012), community gardening can bring about satisfaction and economic benefits. Moreover, several barangays reported that the gardening efforts contributed to combating loneliness, enhancing bonds within the family, relaxation and enjoyment. Only very few barangays responded about barangay garden plants as a social responsibility and as a way of easing the impact of the COVID-19 pandemic.

Despite the quarantine conditions such as isolation, there are numerous uses or benefits from the garden plants in the barangay, such as economic enterprise, food security, helps in saving money, improves health, enhances family bonds, exercise, stress reliever, social well-being, help combat loneliness, and environmental quality are the primary reasons for creating and maintaining barangay gardens. Demuro (2013) states that communities find garden plants as beneficial. The garden plants serve not only as a source of nutritious foods, support social cohesion, strengthen community ties, reduce environmental hazards, offer job training and economic opportunity for low-income individuals and families, but also reduce food miles. Thus, creating a more sustainable system (Sofo & Sofo 2020).

Table 2. Summary table of selected common garden plants and their recorded uses in the barangays

Scientific Name	Voucher Number	Common name	Family	RFC	Barangay	Part/s used	Uses (In words)
Abelmoschus esculentus (L.) Moench	BG001	Okra	Malvaceae	0.039	50,54,74,116	C	Food, Condiment/ Ingredient
Allium cepa L.	BG002	Onion	Amaryllidaceae	0.118	18,22,55,57,69,82,89,95,108,112	A	Food, Condiment/ Ingredient, Processed/Preserved
					1,95	C	Food, Processed/Preserved, Condiment/Ingredient, Medicine (lowers cholesterol)
					52	D	Condiment/Ingredient
					84	E	Food, Condiment, Medicine (anti-bacterial, colds)
Allium porrum L.	BG003	Onion leeks	Amaryllidaceae	0.127	11,15,19,26,66,75,80,81,92,102,109,124,127	A	Food, Processed/Preserved, Condiment/Ingredient, Medicine (anti-inflammatory)
Allium sativum L.	BG004	Garlic	Amaryllidaceae	0.108	17,18,22,52,66,72,104,107	D	Food, Processed/Preserved, Condiments/Ingredient
					4,49,66	C	Food, Processed/Preserved, Condiment/Ingredients, Medicine (toothache, anti-bacterial)
					42,72	G	Condiments/Ingredient, Medicine
Allium schoenoprasum f. leucanthum	BG005	Chives	Amaryllidaceae	0.029	51,79,85	A	Medicine (Cough, bruises), condiments
Allium tuberosum Rottler ex Spreng.	BG006	Kutsay	Amaryllidaceae	0.02	80,112	A	Medicine (lump, wound)
Aloe barbadensis Mill.	BG007	Aloe vera	Asphodelaceae	0.049	9,22,79,82,92,109,112	A	Medicine (wounds, skin, hair growth, coughs), condiment

Species	Code	Common name	Family	Value	Numbers	Group	Uses
Amaranthus dubius Mart. ex Thell.	BG008	Spleen Amaranth	Amaranthaceae	0.01	103	A	Forage, Processed
Ananas comosus (L.) Merr.	BG009	Pineapple	Bromeliaceae	0.01	85	C	Food
Andrographis paniculata (Burm. f.) Wall. ex Nees	BG010	Serpentina	Acanthaceae	0.01	74	A	Food, Medicine
Annona muricata L.	BG011	Guyabano	Annonaceae	0.02	52,80	C	Food and Processed/Preserved
					80	A	Processed/preserved
Asparagus officinalis L.	BG012	Asparagus	Asparagaceae	0.01	98,108	E	Processed/preserved
Bauhinia variegata L.	BG013	Orchid tree	Fabaceae	0.118	15,17,41,52,58,124, 129, 86,89,90,95 8,12,16,23,29,33,37,38, 42,51,54,59,69,74,121, 122, 82, 84, 85,97,98,109,110	B	Decoration
Brassica juncea (L.) Czern.	BG014	Mustard	Brassicaceae	0.147	18,22,52,57,104, 109, 81,92	A	Food, Condiment/Ingredient
					4	B	Processed/Preserved
					11,41,58	C	Food, Condiments/Ingredient, Processed/preserved
					49,90	D	Condiment/ ingredient
					72	G	Condiment/ ingredient
Brassica oleracea var. *capitata* L.	BG015	Cabbage	Brassicaceae	0.147	4,12,18,23,37,45,49,52, 54,58,73,76, 82,93,94,104,108,109	A	Food, Forage, Condiments/Ingredient, Processed/preserved
					86,110	C	Food, Processed/preserved
Brassica oleracea var. *italica* Plenck	BG016	Broccoli	Brassicaceae	0.069	4,18,23,58,93,107	B	Food, Processed/preserved
					93	A	Food, Processed/preserved
					72	G	Condiment/ ingredient

Species	Code	Common name	Family		Informants	Group	Use
					93	C	Food
Brassica rapa L.	BG017	Pechay	Brassicaceae	0.294	3,7,11,15,16,18,21,22, 33,35,36,44,45,50,51, 52,57, 66,67,72,74, 79, 81,92,108,109,115, 116	A	Food, Forage, Processed/preserved, condiments/ingredient, medicine, offertory
					33,36	E	Food, Processed/preserved
					33	F	Food, Processed/preserved
					75, 82	G	Food
Brassica rapa subsp. *pekinensis* (Lour.) Kitam.	BG018	Chinese Cabbage/ Wombok	Brassicaceae	0.02	55, 76	A	Food
Cajanus cajan (L.) Huth	BG019	Congo/ Pigeon peas	Fabaceae	0.02	51	F	Food
Camellia sinensis (L.) Kuntze	BG020	Tea	Theaceae	0.02	18,100	A	Medicine
Capsicum annuum L.	BG021	Bell pepper	Solanaceae	0.029	15,81,109	C	Food, Processed/Preserved, Condiment/Ingredient
Capsicum frutescens L.	BG022	Sili	Solanaceae	0.098	1, 17,18,22,55,66,69,71, 80, 82	C	Condiment/Ingredient, Processed/Preserved, Food
					1, 111	A	Food, Processed/Preserved
Carica papaya L.	BG023	Papaya	Caricaceae	0.02	66,112	C	Food, Processed/Preserved, Condiment/ Ingredient
Citrus limon (L.) Osbeck	BG024	Lemon	Rutaceae	0.069	18,41,80,107, 120, 121	C	Food, Processed/Preserved, Condiment/Ingredient. Medicine (sore throat)
					112	A	Medicine (cough and lowering high blood pressure)
Citrus maxima (Burm.) Merr.	BG025	Pomelo	Rutaceae	0.02	16,42,101	C	Food, Medicine, Processed/Preserved
Citrus x clementina Yu. Tanaka	BG026	Kiat-kiat	Rutaceae	0.01	81	C	Food
Citrus x microcarpa Bunge	BG027	Calamansi	Rutaceae	0.039	1,49,69,80,81	C	Food, Condiment/Ingredient, Medicine (cough), processed/preserved

Species	Code	Common name	Family	Value	References	Group	Uses
Citrus x sinensis (L.) Osbeck	BG028	Orange	Rutaceae	0.01	34 / 80	C	Food
Coffea sp. L.	BG029	Coffee	Rubiaceae	0.069	18,90	C	Processed/Preserved
					11,52,66,80,81,109	F	Food, Processed/Preserved, Condiment/Ingredient
					39		No use recorded
Colocasia esculenta (L.) Schott	BG030	Gabi	Araceae	0.098	1,49,92,101	A	Food, Condiments/Ingredient
					1,49,69,80,92,109, 110	C	Food, Processed/preserved, Condiment/ ingredient
					66, 72,101	D	Processed/Preserved, Condiment/ ingredient
					19,38,39,71,85		No use recorded
Coriandrum sativum L.	BG031	Cilantro	Apiaceae	0.01	39	A	Food
Costus igneus N.E. Br	BG032	Insulin plant	Costaceae	0.01	9, 56, 129	A	Food, Medicine (lowers blood sugar)
Cucumis sativus L.	BG033	Cucumber	Cucurbitaceae	0.088	21,41,51,58,66,90,108,109, 110	C	Food, Processed/Preserved, Ingredient/Condiment
Cucurbita maxima Duchesne	BG034	Squash	Cucurbitaceae	0.235	70,74	A	Condiment/ ingredient
					18,25, 70,72, 104,	B	Food, Condiments/Ingredient
					1,21,22,25,41,49,52,58,70, 71,74,80, 81,82,90,94,102, 107, 108, 109, 114	C	Food, Processed/Preserved, Condiment/ Ingredient
					72	G	Condiment/ ingredient
					82	F	Food
Cucurbita pepo L. subsp. *pepo*	BG035	Zucchini	Cucurbitaceae	0.01	4	C	Processed/Preserved, Condiment/Ingredient
Cymbopogon citratus (DC.) Stapf	BG036	Lemon Grass	Poaceae	0.108	7,18,25,27,52,66,80,82, 88,109	A	Condiments/Ingredients, Medicine (Digestive problems, cleansing, cough), Processed/ preserved

Species	Code	Common name	Family	Value	Refs	Group	Uses
					1	E	Condiments/Ingredients
Daucus carota L.	BG037	Carrot	Apiaceae	0.049	4,19,52,58,93	D	Food, Forage, Processed/preserved
					41,108	C	Food, Processed/Preserved
Dioscorea alata L.	BG038	Ube	Dioscoreaceae	0.01	80	C	Processed/preserved
Flacourtia rukam Zoll. & Moritzi	BG039	Cherry plum tree	Salicaceae	0.01	92	C	Food, Processed/Preserved
Fragaria x ananassa Duch.	BG040	Strawberry	Rosaceae	0.255	4,9,14,15,16,18,19,21,23,31,41,42,45,52,66,72,74,85,89,92,95,108,109,112,115, 122	C	Food (eaten raw), Forage, Offertory, Processed/Preserved (Jam), Medicine (promote HDL), Condiment/Ingredient
					31	A	Medicine (Heart problems, weight management, improves immune system)
Gynura procumbens (Lour.) Merr.	BG041	Longevity Spinach	Asteraceae	0.01	56	A	Medicine (lowers blood sugar)
Ipomoea aquatica Forsk.	BG042	Kangkong	Convolvulaceae	0.02	22,74	A	Food, Condiment/ ingredient
Ipomoea batatas (L.) Lam.	BG043	Camote	Convolvulaceae	0.167	7,25,49,51,52,60,71,79,82,111, 116	A	Food, Forage, Medicine (provide vitamins and minerals, lots of Vit K, urinary diseases), Processed/Preserved, Condiment/Ingredient
					1,27,49,71, 80, 82,101,111	C	Food, Forage, Condiment/ ingredient, Medicine, Processed/Preserved
					7,72	D	Food, Processed/Preserved, Condiment/Ingredient
					102	E	Food, Processed/Preserved, Condiment/Ingredient
Lablab purpureus (L.) Sweet	BG044	Bataw	Fabaceae	0.01	18,90,101	C	Food
Lactuca sativa L.	BG045	Lettuce	Asteraceae	0.255	4,7,11,18,21,23,41,42,52,54,55,58,65,72,74,81,85,	A	Food (eaten raw), Condiment/Ingredient, Processed/preserved, offertory

					86,89,90,93,97,104,108, 109,110,111,122,		
					81	E	Food
					82	G	Food
Lagenaria siceraria (Mol.) Standley	BG046	Upo/Bottle gourd	Cucurbitaceae	0.02	21,92	C	Food, Processed/Preserved
Lathyrus odoratus L.	BG047	Sweet peas	Fabaceae	0.029	19,54	C	Food
					109	C	Processed/Preserved
Lavandula angustifolia Mill.	BG048	Lavender	Lamiaceae	0.02	108	B	Decoration
					79	A	Medicine (coughs and bruises), Condiments
Mangifera indica L.	BG049	Mango	Anacardiaceae	0.01	107	C	Food, Processed/Preserved
Manihot esculenta Crantz	BG050	Cassava	Euphorbiaceae	0.01	25	A	Food
					25	D	Food
Manilkara zapota (L.) P.Royen	BG051	Chico	Sapotaceae	0.02	80	C	Food
Mentha arvensis L.	BG052	Mint	Lamiaceae	0.206	4,7,18,21,41,42,49,52,71, 73,80,85,81,90,104,107, 108,109,113, 129	A	Food,condiments/ingredients, Decoration, medicine (antioxidant Medicine,Diet,cold and cough and for teaming)
					16	D	Medicine (cold and cough and for steaming)
Momordica charantia L.	BG053	Bitter melon	Cucurbitaceae	0.118	11,18,52,58,69,80,90,110,111	C	Food, Processed/preserved, Condiment/ ingredient
					41,112	A	Food, Medicine (regulating blood pressure), Processed/preserved
					73	G	Food
Moringa oleifera Lam.	BG054	Malunggay	Moringaceae	0.029	108,109	C	Food, Processed/Preserved
					11, 109	A	Processed/Preserved, Condiment/Ingredient
Musa acuminata Colla	BG055	Banana	Musaceae	0.098	7,25,49,72,73,80,85,109 ,114, 121	C	Food (eaten raw), condiment/ingredients, Offertory, Processed/Preserved

					49	A	Processed/preserved, Food, Condiments/ingredients
Ocimum basilicum L.	BG056	Sweet basil	Lamiaceae	0.02	52, 85	A	Condiment/Ingredient
Passiflora edulis Sims	BG057	Passion fruit	Passifloraceae	0.01	81	C	Food
Persea americana Mill.	BG058	Avocado	Lauraceae	0.029	1,52,107	C	Food, Processed/Preserved
Petroselinum crispum (Mill.) Fuss	BG059	Parsley	Umbelliferae	0.029	15, 66, 80	A	Food, Medicine (anti-cancer), Processed/ preserved, Condiment/ ingredient
Phaseolus lunatus L.	BG060	Lima bean	Fabaceae	0.02	4	F	Processed/Preserved, Condiment/Ingredient
					80	C	Processed/Preserved
Phaseolus vulgaris L.	BG061	Kidney bean/bean	Fabaceae	0.284	1,7,16,17,18,19,23,29,55, 69	C	Food, Condiment/ ingredient
					4,7,52,58	E	Processed/preserved
					6,11,41,44,49,69,71, 80, 81,86,89,90,102,104,107,108	F	Processed/Preserved, Condiment/Ingredient, Food
					42,50,72	G	Food, Condiment/ ingredient
Phyllostachys edulis (Carriere) J.Houz.	BG062	Bamboo shoots	Poaceae	0.01	81	E	Condiment/Ingredient
Piper nigrum L.	BG063	Black Pepper	Piperaceae	0.01	39,90,97,100	C	Food
Plectranthus amboinicus (Lour.) Spreng	BG064	Oregano	Lamiaceae	0.441	1,4,7,8,11,14,15,17,18,19,21,23,25,27,28,41,42, 44, 45,49,52,56,58,59,62,72 , 73,79,80,81,82,86,88,89,90,94, 98,102,104,107,108,109, 110,111,124,127,129,	A	Medicine (cough, asthma, ease flu, colds, mucus, anti-bacterial, anti-inflammatory, indigestion), condiment, Food, Forage
					111	C	Processed/preserved

					111	E	Medicine (cough)
Pouteria campechiana (Kunth) Baehni	BG065	Chesa	Sapotaceae	0.02	52,110	C	Food, Processed/Preserved
Psidium guajava L.	BG066	Guava	Myrtaceae	0.098	79, 82,129	A	Medicine (skin rashes, stomach pain, antiseptic)
					1,34,38,52,79,81,101	C	Food (eaten raw), Processed/preserved, medicine (stomach pain)
					38	F	Medicine (Digestive system)
					34,38,114	A	Medicine (Diarrhea, Vitamin C), Food (eaten raw)
Psophocarpus tetragonolobus (L.) DC.	BG067	Winged beans	Fabaceae	0.01	74	C	Condiment/ ingredient
Raphanus sativus L.	BG068	Radish	Brassicaceae	0.029	69,92,100	C	Condiment/ Ingredient, Processed/Preserved
Salvia rosmarinus Spenn.	BG069	Rosemary	Lamiaceae	0.049	9, 71,74,104	A	Food, Forage, Offertory, Condiment/Ingredients, Medicine
					9	E	Food, Forage, Offertory, Condiment/Ingredients, Medicine
					92	B	Decoration
Rubus fruticosus L.	BG070	Blackberry	Rosaceae	0.01	81	C	Food
Saccharum officinarum L.	BG071	Sugar cane	Poaceae	0.01	49	E	Food
Salvia hispanica L.	BG072	Chia seeds	Lamiaceae	0.01	104	F	Condiment/Ingredients, Medicine
Salvia officinalis L.	BG073	Sage	Lamiaceae	0.01	11	B	Decoration
Sechium edule (Jacq.) Sw.	BG074	Sayote	Cucurbitaceae	0.255	11,18,21,32,34,41,49,52, 66,69,74,81,92,100, 102,103,107,109,110, 116,123,124,129	C	Food, Forage, Processed/preserved, Condiment/Ingredients, Medicine (Diabetes, Help lower cholesterol), Offertory
					34,39,41,49,69,74,103, 116	A	Food, Processed/preserved, Forage, Condiment/ ingredient, Offertory, Medicine (reduce inflammation)

					41, 124	E	Food, Processed/Preserved, Forage, Condiment/ ingredient, Offertory, Medicine (reduce inflammation)
					73,75	G	Food
Selenicereus undatus (Haw.) D.R. Hunt	BG075	Dragon Fruit	Cactaceae	0.01	80	C	Food
Smallanthus sonchifolius (Poepp.) H. Rob.	BG076	Yakon	Asteraceae	0.01	66	D	Processed/ preserved
Solanum lycopersicum L.	BG077	Tomato	Solanaceae	0.373	1,11,12,15,17,18,22,23, 41,42,44,49,52,55,58,62 ,71,72,73,74,75, 80,81,85, 86, 90,92,93,94, 102,104,107,108,109,11 0, 122, 124, 127	C	Food (eaten raw), Processed/Preserved, Condiment/Ingredient, Medicine (w/ Lycopene)
Solanum melongena L.	BG078	Eggplant	Solanaceae	0.255	1,4,11,18, 21, 22, 23,41,44,52, 55,58,65,69,74,80, 81,90,102, 108, 109, 110, 119, 127	C	Food, Processed/preserved, Condiment/Ingredient
					72,73	G	Condiment/Ingredients
Solanum nigrum L.	BG079	Black Nightshade	Solanaceae	0.01	103	A	Forage, Processed
					103	F	Forage, Processed
Solanum tuberosum L.	BG080	Potato	Solanaceae	0.049	18,51,52,93	D	Food, Processed/preserved
					86	C	Processed/ preserved
Stevia rebaudiana (Bertoni) Bertoni	BG081	Stevia	Asteraceae	0.01	104	A	Condiment/Ingredients
					104	B	Condiment/Ingredients

Tetragastris balsamifera (Sw.) Oken	BG082	Masa	Burseraceae	0.01	72	C	Food
Tetragonia tetragonioides (Pall.) Kuntze	BG083	Spinach	Aizoaceae	0.029	11,18,74	A	Condiment/Ingredient, Food, Processed/Preserved
Thymus decussatus Benth.	BG084	Sinai thyme	Lamiaceae	0.01	11	B	Decoration
Thymus vulgaris L.	BG085	Thyme	Lamiaceae	0.02	41, 85	A	Condiment/ ingredient, Medicine
Vigna unguiculata subsp. *sesquipedalis* (L.) Verdc.	BG086	String beans	Fabaceae	0.039	69,101,116	C	Condiment/ ingredient
					69	F	Condiment/ ingredient
					75	G	Food
Zea mays L.	BG087	Corn	Poaceae	0.108	4,18,21,52,58,80, 81,89,93,90,108	C	Food, Processed/Preserved, Condiment
Zingiber officinale Roscoe	BG088	Ginger	Zingiberaceae	0.049	4, 52,102	D	Food, Processed/Preserved, Medicine (anti-bacterial)
					30,109	C	Food, Processed/Preserved, Condiment/Ingredient, Medicine (Improves heart risk & cough)

LEGEND: Plant Parts. A-Leaves, B-Flowers, C-Fruits, D-Roots, E-Stem, F-Seeds, G-Whole plant; **Barangays.** 1-A. Bonifacio-Caguioa-Rimando, 2- Abanao-Zandueta-Kayong-Chugum-Otek, 3-Alfonso Tabora, 4-Ambiong, 5-Andres Bonifacio, 6-Apugan-Loakan, 7-Asin Road, 8-Atok Trail, 9-Aurora Hill Proper, 10-Aurora Hill, North Central, 11- Aurora Hill South Central, 12-Bagong Lipunan, 13-Bakakeng Central, 14-Bakakeng North, 15-Bal-Marcoville, 16-Balsigan, 17-Bayan Park East, 18-Bayan Park Village, 19-Bayan Park West, 20-BGH Compound, 21-Brookside, 22-Brookspoint, 23-Cabinet Hill-Teacher's Camp, 24-Camdas Subdivision, 25-Camp 7, 26-Camp 8, 27-Camp Allen, 28-Campo Filipino, 29-City Camp Central, 30-City Camp Proper, 31-Country Club Village, 32-Cresencia Village, 33-Dagsian Lower, 34-Dagsian Upper, 35-Dizon Subdivision, 36-Dominican Hill-Mirador, 37-Dontogan, 38-DPS Area, 39-Engineer's Hill, 40-Fairview Village, 41-Ferdinand, 42-Fort del Pilar, 43-Gabriela Silang, 44-General Emilio F. Aguinaldo, 45-General Luna Lower, 46-General Luna Upper, 47-Gibraltar, 48-Greenwater Village, 49-Guisad Central, 50-Guisad Sorong, 51-Happy Hollow, 52-Happy Homes, 53-Harrison-Claudio Carantes, 54-Hillside, 55-Holy Ghost Extension, 56-Holy Ghost Proper, 57-Honeymoon, 58-Imelda R. Marcos, 59-Imelda Village, 60-Irisan, 61-Kabayanihan, 62-Kagitingan, 63-Kayang Extension, 64-Kayang Hilltop, 65-Kias, 66-Legarda-Burnham-Kisad, 67-Liwanag-Loakan, 68-Loakan Proper, 69-Lopez Janea, 70-Lourdes Subd. Extension, 71-Lourdes Subd. Lower, 72-Lourdes Subd. Proper, 73-Lualhati, 74-Lucnab, 75-Magsaysay Private Road, 76-Magsaysay Lower, 77-Magsaysay, Upper, 78-Malcolm Square-Perfecto, 79-Manuel A. Roxas, 80-Market Subdivision Upper, 81-Middle Quezon Hill Subdivision, 82-Military Cut-off, 83-Mines View Park, 84-Modern Site East, 85-Modern Site West, 86-MRR-Queen of Peace, 87-New Lucban, 88-Outlook Drive, 89-Pacdal, 90-Padre Burgos, 91-Padre Zamora, 92-Palma-Urbano, 93-Phil-Am, 94-Pinget, 95-Pinsao Pilot Project, 96-Pinsao Proper, 97-Poliwes, 98-Pucsusan, 99-Quezon Hill Proper, 100-Quezon Hill Upper, 101-Quirino Hill East, 102-Quirino Hill Lower, 103-Quirino Hill Middle, 104-Quirino Hill West, 105-Quirino-Magsaysay, Upper, 106-Rizal Monument Area, 107-Rock Quarry Lower, 108-Rock Quarry Middle, 109-Rock Quarry Upper, 110-Saint Joseph Village, 111-Salud Mitra, 112-San Antonio Village, 113-San Luis Village, 114-San Roque Village, 115-San Vicente, 116-Sanitary Camp North, 117-Sanitary Camp, South, 118-Santa Escolastica, 119-Santo Rosario, 120-Santo Tomas Proper, 121-Santo Tomas School Area, 122-Scout Barrio, 123-Session Road, 124-Slaughter House Area, 125-SLU-SVP, 126-South Drive, 127-Teodora Alonzo, 128-Trancoville, 129-Victoria Village

Use and Informant Consensus Factor values of plants and their families
The highest over-all use value was computed for *Solanum lycopersicum* or tomato (0.657) followed by oregano *Plectranthus amboinicus* (0.471), strawberry *Fragaria x ananassa* (0.451), lettuce *Lactuca sativa* (0.441), chives *Allium schoenoprasum* f. leucanthum (0.392), pechay (*Brassica rapa*), kidney beans (*Phaseolus vulgaris*), and sayote (*Sechium edule*) (0.363), mint *Mentha arvensis* (0.343), egg plant *Solanum melongena* (0.284), squash *Cucurbita maxima* (0.255), camote *Ipomoea batatas* (0.245), onion leeks *Allium porrum* and cabbage *Brassica oleracea var. capitata* (0.206), garlic *Allium sativum* (0.196), cucumber *Cucumis sativus* and mustard *Brassica juncea* (0.176), malunggay *Moringa oleifera* (0.157), banana *Musa acuminata* and corn *Zea mays* (0.147). These are the commonly used plants in the barangays, thus, most important (**Figure 3**).
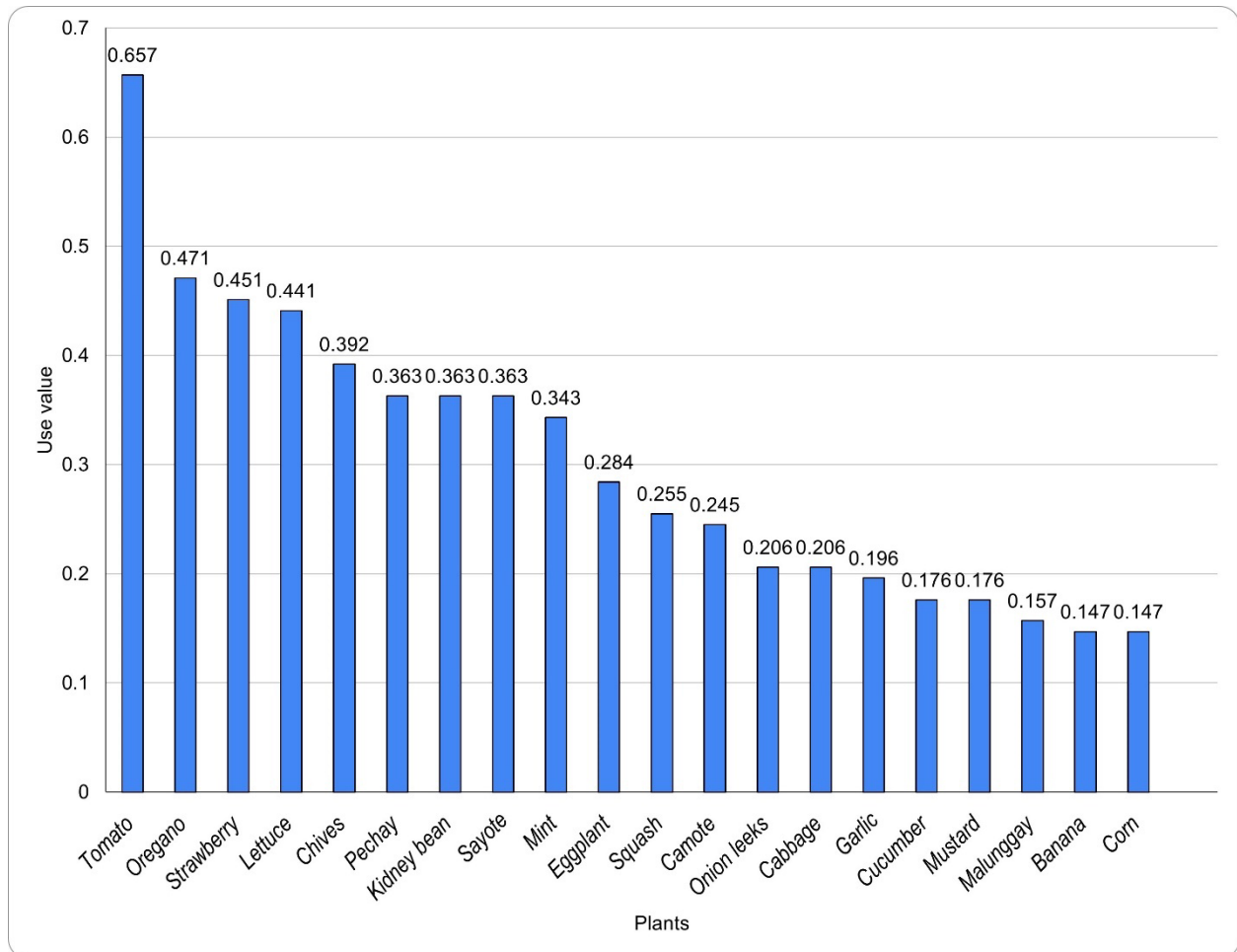
Figure 3. Ranking of barangay garden plants based on over-all use values

According to Galhena *et al.* (2013), plants must be grown in gardens to enhance food security, livelihood, and well-being. In the survey conducted, tomato is the most widely used fruit-bearing and vegetable plant in the barangay gardens eaten as raw (Figure 4a). It is mainly used for cuisine, particularly as an ingredient and processed or preserved (Figure 4b-c). This low-calorie and vitamin C-rich plant is a popular home garden crop that can easily grow in a small area all year round (Hillock & Rebek 2013). Aside from food, it is used as a medicine with many health benefits due to carotenoids (alpha and beta-carotene), and lutein, including vitamins, provitamins, and minerals. Tomatoes are also the richest sources of lycopene, a red-colored carotenoid pigment that prevents cancers (Padmanabhan *et al.* 2016), reduces levels of cholesterol and blood pressure, works to keep the blood sugar level under control, and helps to prevent cardiovascular diseases (Bhowmik *et al.* 2012). The medicinal value of this species can also be attributed to its secondary metabolites such as tannins, flavonoids, anthocyanins, catechins, and quercetin among others (da Silva Pinto *et al.* 2008). These constituents exhibit strong antioxidant activity which can aid prevent cardiovascular-related diseases (Giampieri *et al.* 2013).

Second to tomato, lettuce is also widely cultivated and consumed green leafy vegetables as salad with nutritional value and medicinal benefits. It contains vitamins, minerals and organic substances (Noumedem *et al.* 2017). *Sechium edule* (sayote) ranked highest as forage for animals (Figure 4d). Lalthansanga & Samanta (2015) reported that *S. edule* is a safe and healthy meal for animals such as pigs. In terms of offering, fresh strawberry fruits are prepared (Figure 4e). The plants are locally abundant and grow in Baguio city because of its cool weather (Medenilla 2022).

Orchid tree has pink, purple and white orchid-like beautiful flowers. Meanwhile, ground orchid or *Spathoglottis plicata* which has purple flowers was also recorded. Orchids are perennial herbs and are commonly used as ornamental plants due to their attractive flowers (Husain & Eraqui 2023). In general, flower petals are the colorful parts of a plant. This characteristic makes flowering plants such as rose, dahlia etc. ideal for decorating (Figure 4f).

Oregano is the most abundant and widely used medicinal plant in the barangays (Figure 4g). It is among the aromatic species with a strong traditional background as a medicinal plant due to its anti-inflammatory (Leyva-Lopez *et al*. 2017) and anti-bacterial (*Carovic-Stanko et al. 2016*) properties. The oil extracted from its leaves has been reported to be effective for snake and spider bites and respiratory problems (McMillen 2021). The barangay residents use it to treat indigestion, diarrhea, cough and colds, sore throat, and as an ointment to treat wounds. According to Lombrea *et al.* (2020), the flowering branches can be used to treat wounds and toothache externally, seeds can be used for treating urinary tract infections and menstrual disorders, and its leaves and stems are commonly used for treating cough and sore throat.

Over-all, Solanaceae (1.196) is the most important family with the greatest number of plants with the most uses followed by Lamiaceae (1.07) and Amaryllidaceae (1.02). All use values of plants and their families are summarized in Table 3.

Solanaceae, which has the highest use value (1.196), occurs as herbs to trees worldwide, which can be found in deserts to rainforests. The plants belonging to this family such as tomato, egg plant, 'sili' or chili, bell pepper and potato serve as important food sources in the barangays. Solanaceae plants are highly economically important to people (Morris & Taylor 2017). Herbs such as oregano, mint and rosemary among others greatly comprise Lamiaceae. The plants are aromatic and commonly used worldwide as medicinal plants (*Carovic-Stanko et al. 2016*). Similarly, Amaryllidaceae which include chives, onion leeks, onion, garlic and kutsay are commonly distributed in the tropics as bulbous perennial or biennial plants not only as food crops but also for ornamental and horticultural purposes. As a traditional medicine, these are reported to be used in treating stomach ailments, skin diseases, headaches, dizziness, wounds, and pain (Elgorashi 2019).

On the other hand, 21 species are the least used plants (0.010). These are pineapple (*Ananas comosus*), asparagus (*Asparagus officinalis*), Congo peas (*Cajanus cajan*), tea (*Camellia sinensis*), Kiat kiat (*Citrus x clementina*), orange (*Citrus x sinensis*), cilantro (*Coriandrum sativum*), ube (*Dioscorea alata*), Longevity spinach (*Gynura procumbens*), bataw (*Lablab purpureus*), cassava (*Manihot esculenta*), chico (*Manilkara zapota*), passion fruit (*Passiflora edulis*), bamboo shoots (*Phyllostachys edulis*), black pepper (*Piper nigrum*), cherry tree (*Flacourtia rukam*), sugar cane (*Saccharum officinarum*), sage (*Salvia officinalis*), yakon (*Smallanthus sonchifolius*), stevia (*Stevia rebaudiana*), and Sinai thyme (*Thymus decussatus*). This may be due to their small number as influenced by environmental conditions (Grant, 2021) and minimal distribution in some or few barangays.

Data gathered from the respondents show a high level of agreement based on the calculated ICF values (> 0.5) except for plants used in offerings (0.105), with 18 different plants recorded (Table 4). This may be due to the presence of various kinds of religion, rituals and beliefs practiced in the barangays. Plants may be used for religious purposes but may vary depending on one's culture, and religion among others as manifested in rituals, festivals and ceremonies (Sharma & Pegu 2011, Sapkota 2013).

Table 4. Summary of Informant Consensus Factor value per plant use category

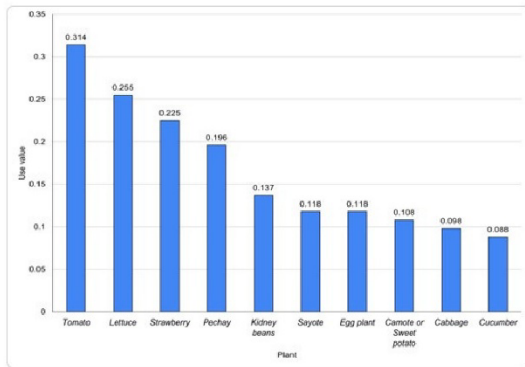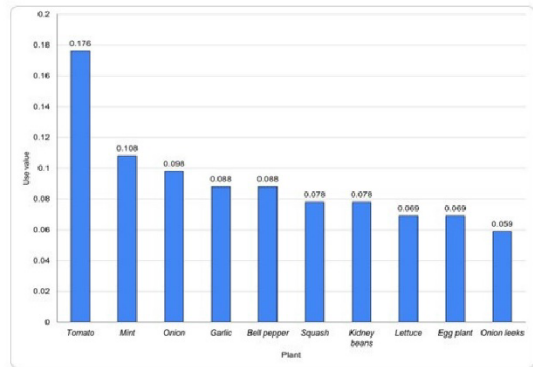| Name of Category	Use Report	Number of Species	ICF Value
Raw Food	306	65	0.790
Forage	17	9	0.500
Offertory	20	18	0.105
Processed/Preserved Food	221	51	0.773
Condiment/Ingredient	178	50	0.723
Decoration	91	38	0.589
Medicine	125	29	0.774

Figure 4a. As food eaten as raw

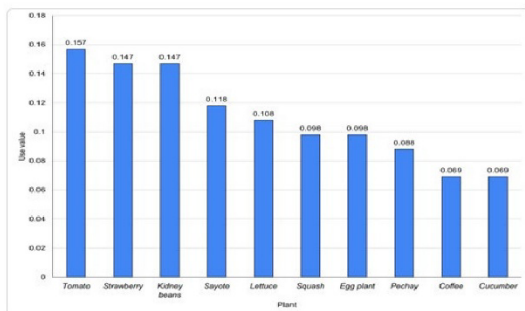***Figure 4b.*** As condiment or ingredient

Figure 4c. As processed or preserved plants
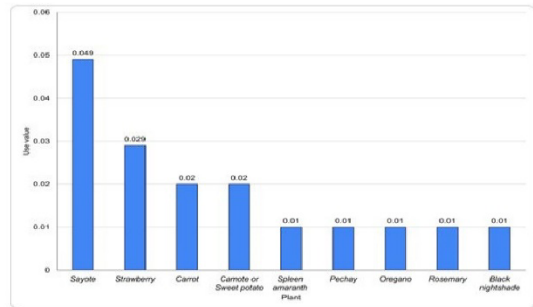
Figure 4d. As forage
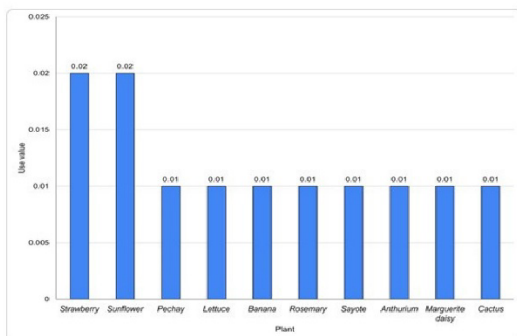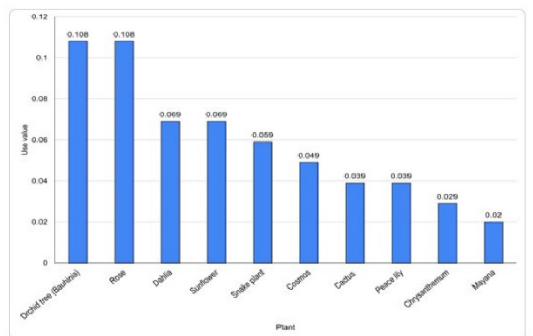

Figure 4e. As offertory plants
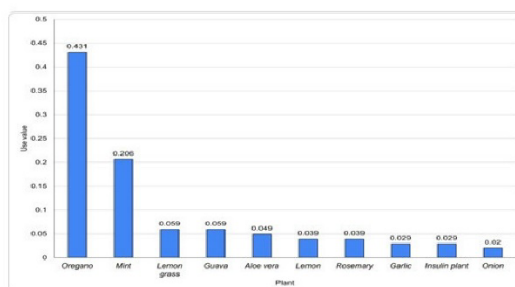

Figure 4f. As decors

Figure 4g. As medicinal plants

Figure 4. Ranking of plants based on use value per category

Further, this study reveals that there are vegetables, fruit-bearing and medicinal plants grown in some barangays that are not currently being used due to their insufficient number or unavailability of parts for consumption. Thus, are still being propagated. These are spring onions (*Allium fistulosum),* dill (*Anethum graveolens),* ashitaba (*Angelica keiskei),* celery (*Apium graveolens),* erbaka (*Artemisia vulgaris),* alugbati (*Basella alba),* wintermelon (*Benincasa hispida),* Chinese kale (*Brassica*

oleracea var. alboglabra), lansones (*Lansium domesticum),* patola (*Luffa acutangula),* and Thai basil (*Ocimum basilicum var. thyrsiflora) among others*.

Table 3. Use value per plant and its family

Families	Scientific Name (Vernacular Name)	No. of Species	UVs	UVf
Acanthaceae	*Andrographis paniculata* (serpentina)	2	0.020	0.020
	Pachystachys lutea (yellow candle)		0	
Aizoaceae	*Lithops aucampiae* (lithops)	2	0	0.029
	Tetragonia tetragonioides (spinach)		0.029	
Alstroemeriaceae	*Alstroemeria aurea* (alstroemeria)	1	0	0
Amaranthaceae	*Alternanthera bettzickiana* (kutsarita)	2	0	0.020
	Amaranthus dubius (spleen amaranth)		0.020	
Amaryllidaceae	*Allium cepa* (onion)	6	0.206	1.02
	Allium fistulosum (spring onion)		0	
	Allium porrum (onion leeks)		0.206	
	Allium sativum (garlic)		0.196	
	Allium schoenoprasum (chives)		0.392	
	Allium tuberosum (kutsay)		0.020	
Anacardiaceae	*Mangifera indica* (mango)	1	0.020	0.020
Annonaceae	*Annona muricata* (guyabano)	1	0.039	0.039
Apiaceae	*Anethum graveolens* (dill)	5	0	0.128
	Angelica keiskei (ashitaba)		0	
	Apium graveolens (celery)		0	
	Coriandrum sativum (cilantro)		0.010	
	Daucus carota (carrot)		0.118	
Apocynaceae	*Allamanda cathartica* (yellow bell)	1	0.01	0.01
Araceae	*Alocasia macrorrhizos* (alocasia)	13	0	0.237
	Anthurium andraeanum (anthurium)		0.02	
	Colocasia esculenta (gabi)		0.098	
	Dieffenbachia seguine (dieffenbachia)		0	
	Epipremnum aureum (pothos)		0	
	Monstera deliciosa (monstera)		0	
	Philodendron bipinnatifidum (tree philodendron)		0	
	Philodendron hederaceum (moonlight or lime philodendron)		0.020	
	Philodendron scandens (heart leaf philodendron)		0.010	
	Spathiphyllum wallisii (peace lily)		0.049	
	Syngonium podophyllum (arrowhead)		0.010	
	Zamioculcas zamiifolia (ZZ plant)		0.010	
	Zantedeschia aethiopica (calla lily)		0.020	
Arecaceae	*Chrysalidocarpus lutescens* (palmera)	1	0	0
Araliaceae	*Heptapleurum arboricola* (umbrella)	1	0.010	0.010
Asparagaceae	*Agave americana* (agave)	10	0	0.119
	Asparagus officinalis (asparagus)		0.010	
	Aspidistra elatior (cast iron plant)		0.01	
	Chlorophytum comosum (spider grass)		0.01	
	Dracaena draco (dragon plant)		0.01	
	Dracaena fragrans (fortune plant)		0	
	Dracaena trifasciata (snake plant)		0.069	
	Ledebouria socialis (ever rich plant)		0	
	Sansevieria trifasciata (bird's nest snake plant)		0.010	
	Yucca filamentosa (yucca)		0	
Asphodelaceae	*Aloe barbadensis* (aloe vera)	3	0.059	0.059

	Aloe brevifolia (short leaved aloe)		0	
	Haworthiopsis attenuata (haworthia)		0	
Aspleniaceae	*Asplenium nidus* (bird's nest fern or dapo)	1	0	0
	Argyranthemum frutescens (marguerite daisy)		0.02	
	Artemisia vulgaris (erbaka)		0	
	Bellis perennis (margarita)		0	
	Calendula officinalis (marigold)		0	
	Cosmos bipinnatus (cosmos)		0.049	
	Chrysanthemum x *morifolium* (chrysanthemum)		0.029	
Asteraceae	*Curio rowleyanus* (cosmos)	13	0	0.745
	Dahlia pinnata (dahlia)		0.078	
	Gynura procumbens (longevity spinach)		0.010	
	Helianthus annuus (sunflower)		0.098	
	Lactuca sativa (lettuce)		0.441	
	Smallanthus sonchifolius (yakon)		0.01	
	Stevia rebaudiana (stevia)		0.01	
Basellaceae	*Basella alba* (alugbati)	1	0	0
	Brassica juncea (mustard)		0.176	
	Brassica oleracea var. alboglabra (Chinese kale)		0	
	Brassica oleracea var. capitata (cabbage)		0.206	
Brassicaceae	*Brassica oleracea var. italica* (broccoli)	8	0.069	
	Brassica rapa (pechay)		0.363	
	Brassica rapa subsp. pekinensis (Chinese cabbage)		0.020	
	Eruca vesicaria (arugula)		0	
	Raphanus sativus (radish)		0.029	
Bromeliaceae	*Ananas comosus* (pineapple)	2	0.010	0.030
	Neoregelia carolinae (bromeliad)		0.020	
Burseraceae	*Tetragastris balsamifera* (masa)	1	0.01	0.01
Cactaceae	*Cereus repandus* (cactus)	2	0.049	0.069
	Selenicereus undatus (dragon fruit)		0.02	
Caprifoliaceae	*Linnaea borealis* (twin bell)	1	0	0
Caricaceae	*Carica papaya* (papaya)	1	0.049	0.049
	Tradescantia fluminensis (wandering jew)		0	
Commelinaceae	*Tradescantia spathacea* (Rhoeo plant)	3	0.010	0.010
	Tradescantia zebrina (silver inch plant)		0	
	Ipomoea aquatica (kangkong)		0.020	
Convolvulaceae	*Ipomoea batatas* (camote)	3	0.245	0.265
	Ipomoea sp. (morning glory)		0	
Costaceae	*Costus igneus* (insulin plant)	1	0.039	0.039
	Crassula ovata (jade)		0.01	
Crassulaceae	*Echeveria elegans* (echeveria)	3	0	0.01
	Kalanchoe pinnata (kalanchoe)		0	
	Benincasa hispida (wax gourd)		0	
	Cucumis sativus (cucumber)		0.176	
	Cucurbita maxima (squash)		0.255	
Cucurbitaceae	*Cucurbita pepo* (zucchini)	8	0.020	0.971
	Lagenaria siceraria (bottle gourd)		0.020	
	Luffa acutangula (patola)		0	
	Momordica charantia (bitter melon)		0.137	
	Sechium edule (sayote)		0.363	
Dioscoreaceae	*Dioscorea alata* (ube)	1	0.010	0.010
Ericaceae	*Rhododendron sp.* (azalea)	1	0	0
Euphorbiaceae	*Codiaeum variegatum* (San Francisco)	4	0	0.03

Family	Species	Count	Value	Total
	Euphorbia esula (spurges)		0	
	Euphorbia pulcherrima (poinsettia)		0.020	
	Manihot esculenta (cassava)		0.01	
Fabaceae	*Bauhinia variegata* (orchid tree)	11	0.118	0.667
	Cajanus cajan (Congo peas)		0.010	
	Calliandra houstoniana var. calothyrsus (calliandra)		0.01	
	Lablab purpureus (bataw)		0.010	
	Lathyrus odoratus (sweet peas)		0.039	
	Phaseolus lunatus (lima bean)		0.029	
	Phaseolus vulgaris (kidney bean)		0.363	
	Psophocarpus tetragonolobus (winged beans)		0.039	
	Senna alata (candle bush)		0.010	
	Sesbania grandiflora (katuray)		0	
	Vigna unguiculata subsp. *sesquipedalis* (string beans)		0.039	
Geraniaceae	*Pelargonium graveolens* (malvarosa)	2	0	0
	Geranium sp. (geranium)		0	
Lamiaceae	*Coleus scutellarioides* (mayana)	12	0.02	1.07
	Lavandula angustifolia (lavender)		0.029	
	Mentha arvensis (mint)		0.343	
	Ocimum basilicum (sweet basil)		0.02	
	Ocimum basilicum var. thyrsiflora (Thai basil)		0	
	Plectranthus amboinicus (oregano)		0.471	
	Salvia hispanica (chia)		0.02	
	Salvia officinalis (sage)		0.01	
	Salvia rosmarinus (rosemary)		0.118	
	Salvia sp. (salvia)		0	
	Thymus decussatus (Sinai thyme)		0.01	
	Thymus vulgaris (thyme)		0.029	
Lauraceae	*Persea americana* (avocado)	1	0.039	0.039
Liliaceae	*Lilium sp.* (two lovers lily)	1	0	0
Malvaceae	*Abelmoschus esculentus* (okra)	3	0.069	0.108
	Hibiscus rosa-sinensis (gumamela)		0.029	
	Pachira aquatica (money tree)		0.010	
Marantaceae	*Ctenanthe oppenheimiana* (cenante)	1	0	0
Meliaceae	*Azadirachta indica* (neem)	2	0	0
	Lansium domesticum (lansones)		0	
Moringaceae	*Moringa oleifera* (malunggay)	1	0.157	0.157
Musaceae	*Musa acuminata* (banana)	1	0.147	0.147
Myrtaceae	*Psidium guajava* (guava)	2	0.137	0.137
	Eugenia uniflora (eugenia)		0	
Nyctaginaceae	*Bougainvillea spectabilis* (bougainvillea)	1	0.01	0.01
Orchidaceae	*Spathoglottis plicata* (ground orchids)	1	0	0
Pandanaceae	*Pandanus amaryllifolius* (pandan)	1	0	0
Papaveraceae	*Lamprocapnos spectabilis* (bleeding heart)	1	0	0
Passifloraceae	*Passiflora edulis* (passion fruit)	1	0.01	0.01
Piperaceae	*Peperomia pellucida* (peperomia)	2	0	0.1
	Piper nigrum (black pepper)		0.01	
Poaceae	*Bambusa vulgaris* (bamboo)	5	0.01	0.314
	Cymbopogon citratus (lemon grass)		0.137	
	Phyllostachys edulis (bamboo shoots)		0.01	
	Saccharum officinarum (sugar cane)		0.01	
	Zea mays (corn)		0.147	

Pontederiaceae	*Pontederia crassipes* (water hyacinth)	1	0	0
Portulacaceae	*Portulaca grandiflora* (Vietnam rose)	1	0	0
Rosaceae	*Fragaria x ananassa* (strawberry)	3	0.451	0.579
	Rubus fruticosus (blackberry)		0.01	
	Rosa sp. (rose)		0.118	
Rubiaceae	*Coffea sp.* (coffee)	2	0.098	0.098
	Gardenia jasminoides (rosal)		0	
Rutaceae	*Citrus limon* (lemon)	5	0.108	0.246
	Citrus maxima (pomelo)		0.049	
	Citrus x clementina (kiat kiat)		0.010	
	Citrus x microcarpa (calamansi)		0.069	
	Citrus x sinensis (orange)		0.010	
Salicaceae	*Flacourtia rukam* (cherry plum)	1	0.01	0.01
Sapotaceae	*Manilkara zapota* (chico)	2	0.01	0.049
	Pouteria campechiana (chesa)		0.039	
Solanaceae	*Capsicum annuum* (bell pepper)	6	0.049	1.196
	Capsicum frutescens (sili)		0.137	
	Solanum lycopersicum (tomato)		0.657	
	Solanum melongena (egg plant)		0.284	
	Solanum nigrum (black night shade)		0.02	
	Solanum tuberosum (potato)		0.049	
Strelitziaceae	*Strelitzia reginae* (birds of paradise)	1	0	0
Theaceae	*Camellia sinensis* (tea)	1	0.010	0.010
Umbelliferae	*Petroselinum crispum* (parsley)	1	0.069	0.069
Verbenaceae	*Duranta erecta* (golden bush)	1	0	0
Zingiberaceae	*Zingiber officinale* (ginger)	1	0.127	0.127

Conclusion

Gardening has never been more popular today when the pandemic emerged than before. Notably, the study reveals that different kinds of plants found in the different barangays are important and helpful due to their recreational uses and benefits in community healthcare, the local economy, and the environment. Therefore, the data gathered from the study may serve as a reference and baseline information for barangay residents and agriculturists to aid in improving the gardening projects of the city. Specifically, in determining which type of plants or crops are best to grow in the barangays. Moreover, the benefits obtained from the creation of barangay gardens and utilization of barangay garden plants must be promoted among residents of the city and in other provinces of the country. Further, this study recommends the formulation of policies or ordinances by local government officials on the full utilization and maintenance of barangay gardens in the city.

Declarations

Acknowledgment

Literature cited

AgriFarming. Urban agriculture in the Philippines, Livestock. 2021. https://www.agrifarming.in/urban-agriculture-in-the-philippines-livestock (Accessed 10/08/2023).

Alamada Z, Cuevas D, Tolin J, Besa A. 2021. The plantitas and their plants gardening in time of the pandemic: a case of sitio Lasang planters in Koronadal city, Philippines. Indonesian Journal of Multidiciplinary Research *2*(2): 313-316.

Alemu A, Habtamu K, Eba S. 2019. Assessing fruit tree species diversity in home garden agro-forestry and their role supporting local people's livelihoods in Burie district, Ethiopia. Turkish Journal of Agriculture - Food Science and Technology 7 (7): 946-54. doi: 10.24925/turjaf.v7i7.946-954.1977.

Baguio City Guide. Baguio City placed under Citywide Community Quarantine. 2020. https://baguiocityguide.com/baguio-city-placed-under-citywide-community-quarantine/ (Accessed 10/08/2023).

Bahadur S, Long W, Shuaib M. 2020. Human coronaviruses with emphasis on the COVID-19 outbreak. *VirusDisease* 31 (2): 80-84.

Bhowmik D, Kumar KP, Paswan S, Srivastava S. 2012. Tomato-a natural medicine and its health benefits. Journal of Pharmacognosy and Phytochemistry 1 (1): 33-43. https://www.phytojournal.com/vol1Issue1/Issue_may_2012/3.pdf

Blustein DL, Guarino PA. 2020. Work and unemployment in the time of COVID-19: the existential experience of loss and fear. Journal of Humanistic Psychology 60(5): 702–709.

Carney PA, Hamada JL, Rdesinski R, Sprager L, Nichols KR, Liu BY, Pelayo J, Sanchez MA, Shannon J. 2012. Impact of a community gardening project on vegetable intake, food security and family relationships: a community-based participatory research study. Journal of community health, 37(4), 874–881. doi: 10.1007/s10900-011-9522-z

Carovic-Stanko K, Petek M, Grdisa M, Pintar J, Bedekovic D, Herak Custic M, Satovic Z. 2016. Medicinal plants of the family Lamiaceae as functional foods-a review. Czech Journal of Food Science 34 (5): 377-390.

Cerda C, Guenat S, Egerer M, Fischer L. 2022. Home food gardening: benefits and barriers during the COVID-19 pandemic in Santiago, Chile. Frontiers in Sustainable Food Systems 6: 1-13.

da Silva Pinto M, Lajolo FM, Genovese MI. 2008. Bioactive compounds and quantification of total ellagic acid in strawberries (*Fragaria x ananassa* Duch.). Food Chemistry 107(4): 1629-1635.

Demuro K. The many benefits of community gardens. (11 July 2013). Greenleaf Communities.

Department of Agriculture (Agricultural Training Institute). Backyard gardening to secure every household's food source. 2020. https://ati.da.gov.ph/archives/ati-main/?q=news/04032020-1152/backyard-gardening-secure-every-household%E2%80%99s-food-source (Accessed 10/08/2023)

Egerer M, Lin B, Kingsley J, Marsh P, Diekmann L, Ossola A. 2022. Gardening can relieve human stress and boost nature connection during the COVID-19 pandemic. Urban Forestry & Urban Greening 68: 1-11.

El Khateeb S, Saber M, Shawket I. 2023. Urban reflections through home gardening; does gender matter? Ain Shams Engineering Journal 14:101885.

Elgorashi EE. 2019. Phytochemistry and pharmacology of the family Amaryllidaceae: an overview of research at RCPGD. Natural Product Communications, 14(9). doi:10.1177/1934578X19872929

Estoque R, Murayama Y. 2012. Examining the potential impact of land use/cover changes on the ecosystem services of Baguio city, the Philippines: A scenario-based analysis. Applied Geography 35: 316-326.

Estoque RC, Murayama Y. 2013. City profile: Baguio. Cities, 30, 240-251.

Eyawo O, Viens AM, Ugoji UC. 2021. Lockdowns and low- and middle-income countries: building a feasible, effective, and ethical COVID-19 response strategy. Globalization and Health 17 (13): 1-5.

Fernando WD. 2012. Plants: an international scientific open access journal to publish all facets of plants, their functions and interactions with the environment and other living organisms. Plants 1(1):1-5. doi: 10.3390/plants1010001

Galhena DH, Freed R, Maredia KM. 2013. Home gardens: a promising approach to enhance household food security and wellbeing. Agriculture and Food Security 2(1):1-13.

Ghazal EMAA. 2019. Taxonomic studies on the family Asteraceae (Compositae) of Hajjah governorate, West of Yemen. Journal of Medicinal Plants Studies 7 (5): 90-100.

Giampieri F, Alvarez-Suarez JM, Mazzoni L, Romandini S, Bompadre S, Diamanti J, Battino M. 2013. The potential impact of strawberry on human health. Natural Product Research *27*(4-5): 448-455.

Heinrich M, Ankli A, Frei B, Weimann C, Sticher O. 1998. Medicinal plants in Mexico: healers' consensus and cultural importance. Social Science and Medicine 47 (11): 1859-1871. doi: doi: 10.1016/s0277-9536(98)00181-6

Hillock D, Rebek E. 2013. Growing tomatoes in the home garden. Oklahoma Cooperative Extension Service HLA-6012: 1-8.

https://www.greenleafcommunities.org/the-many-benefits-of-community-gardens/ (Accessed 20/12/2023).

Husain MF, Eraqui S. 2023. Orchids: a wonderful ornamental plant. Asian Journal of Research in Crop Science 8 (4): 167-172.

Huss E, Bar Yosef K, Zaccai M. 2018. Humans' relationship to flowers as an example of the multiple components of embodied aesthetics. Behavioral Sciences *8*(3): 32. doi: 10.3390/bs8030032

Inter-Agency Task Force. Omnibus guidelines on the implementation of community quarantine in the Philippines. 2020.https://www.officialgazette.gov.ph/downloads/2020/05may/20200429-Omnibus-Guidelines-on-the-Implementation-of-Community-Quarantine-in-the-Philippines.pdf (Accessed 11/08/2023).

Kingsley J, Diekmann L, Egerer MH, Lin BB, Ossola A, Marsh P. 2022. Experiences of gardening during the early stages of the COVID-19 pandemic. Health Place 76: 1-7. doi: 10.1016/j.healthplace.2022.102854

Koh D. 2020. COVID-19 lockdowns throughout the world. Occupational Medicine 70 (5): 322. doi: 10.1093/occmed/kqaa073

Lal R. 2020. Home gardening and urban agriculture for advancing food and nutritional security in response to the COVID-19 pandemic. Food security 12(4): 871-876. doi: 10.1007/s12571-020-01058-3

Lalthansanga J, Samanta AK. 2015. Effect of feeding chayote (*Sechium edule*) meal on growth performance and nutrient utilization in indigenous pig (Zovawk) of Mizoram. Veterinary world 8(7): 918–923. doi: 10.14202/vetworld.2015.918-923

Lee J. 2017. Experimental study on the health benefits of garden landscape. International journal of environmental research and public health 14(7): 829. doi: 10.3390/ijerph14070829

Leyva-López N, Gutiérrez-Grijalva EP, Vazquez-Olivo G, Heredia JB. 2017. Essential oils of oregano: biological activity beyond their antimicrobial properties. Molecules 22(6): 989. doi: 10.3390/molecules22060989

Lobien P, Agoot L. Baguio to enforce strict quarantine, curfew. 2020. Philippine News Agency. https://www.pna.gov.ph/articles/1096979 (Accessed 10/08/2023).

Lombrea A, Antal D, Ardelean F, Avram S, Pavel IZ, Vlaia L, Danciu C. 2020. A recent insight regarding the phytochemistry and bioactivity of *Origanum vulgare* L. essential oil. International Journal of Molecular Sciences 21(24): 9653. doi: 10.3390/ijms21249653

McMillen M. Oregano. 2021. https://www.webmd.com/vitamins-and-supplements/oregano-uses-and-risks (Accessed 10/ 8/ 2023).

Medenilla V. Strawberries grow vertically in a Baguio garden. 31 May 2022. https://mb.com.ph/2022/03/31/strawberries-grow-vertically-in-a-baguio-garden/ (Accessed 10/1/2024).

Mekonen T, Giday M, Kelbessa E. 2015. Ethnobotanical study of homegarden plants in Sebeta-Awas district of the Oromia region of Ethiopia to assess use, species diversity and management practices. Journal of Ethnobiology and Ethnomedicine 11: 1-13. doi: 10.1186/s13002-015-0049-8

Montefrio MJF. 2020. Interrogating the "productive" home gardener in a time of pandemic lockdown in the Philippines. Food and Foodways 28(3): 216-225. doi: 10.1080/07409710.2020.1790142.

Morris WL, Taylor MA. 2017. The solanaceous vegetable crops: Potato, tomato, pepper, and eggplant. In Elsevier eBooks 55-58. doi: 10.1016/b978-0-12-394807-6.00129-5.

Neulinger K. Vogl CR, Alayón-Gamboa JA. 2013. Plant species and their uses in homegardens of migrant Maya and Mestizo smallholder farmers in Calakmul, Campeche, Mexico. Journal of Ethnobiology 33(1): 105-124. doi: 10.2993/0278-0771-33.1.105

Ngome I, Foeken D. 2012. "My garden is a great help":gender and urban gardening in Buea, Cameroon. GeoJournal 77:103-118.

Noumedem JAK, Djeussi DE, Hritcu L, Mihasan M, Kuete V. 2017. *Lactuca sativa*. In Medicinal spices and vegetables from Africa. In Elsevier eBooks 437-449. doi: 10.1016/b978-0-12-809286-6.00020-0

Padmanabhan P, Cheema A, Paliyath G. 2016. Solanaceous fruits Including tomato, eggplant, and peppers. In Elsevier eBooks 24-32. doi: 10.1016/b978-0-12-384947-2.00696-6.

Pasquin A. Philippine Information Agency. 2023. Barangay SK elections: cornerstone of grassroots governance. https://pia.gov.ph/features/2023/06/28/barangay-sk-elections-cornerstone-of-grassroots-governance (Accessed 6/1/2024).

Patel A, Patel S, Fulzele P, Mohod S, Chhabra KG. 2020. Quarantine an effective mode for control of the spread of COVID19? a review. Journal of Family Medicine and Primary Care 9 (8): 3867-3871. doi: 10.4103/jfmpc.jfmpc_785_20.

Pelser PB, Barcelona JF, Nickrent DL. Co's Digital Flora of the Philippines. 2011 onwards. https://www.philippineplants.org/ (Accessed 11/08/2023).

Philpott SM, Egerer MH, Bichier P, Cohen H, Cohen R, Liere H, Lin BB. 2020. Gardener demographics, experience, and motivations drive differences in plant species richness and composition in urban gardens. Ecology and Society 25(4): 8. doi: 10.5751/ES-11666-250408

Plants of the World Online (POWO). 2023. https://powo.science.kew.org/ (Accessed 11/08/2023)

Potutan GE, Schnitzler WH, Arnado JM, Janubas LG, Holmer RJ. 2000. Urban agriculture in Cagayan de Oro: a favourable response of city government and NGOs. In: Undan R, Nitural P, Roque A, Liban D (eds) Urban agriculture-a step by step guide to sucessful container gardening in the city. Philippines, pp. 413-428. https://www.cityfarmer.org/philippinerefs.html

Prasetyo Y, Castillo A, Salonga L, Sia J, Seneta J. 2020. Factors affecting perceived effectiveness of COVID-19 prevention measures among Filipinos during enhanced community quarantine in Luzon, Philippines: integrating protection motivation theory and extended theory of planned behavior. International Journal of Infectious Diseases 99: 312-323. doi: 10.1016/j.ijid.2020.07.074

Quitasol K. Gardening in the time of pandemic: Baguio's urban vegetable lifeline. 2020. https://nordis.net/2020/04/19/topic/econ-and-devt/gardening-in-the-time-of-a-pandemic-baguios-urban-vegetable-lifeline/ (Accessed 10/08/2023).

Reuters. Philippines confirms first case of new coronavirus: health minister. 2020. https://www.reuters.com/article/idUSKBN1ZT0S0/ (Accessed 04/12/2024)

Riedell WE, Schumacher TE. 2003. Transport of water and nutrients in plants. In:Lal R (ed). Encyclopedia of Life Support Systems (EOLSS). Oxford, UK, http://www.eolss.net

Sapkota P. 2013. Religious culture and medicinal plants: an anthropological study. Dhaulagiri Journal of Sociology and Anthropology 7: 197-224.

Sharma UK, Pegu S. 2011. Ethnobotany of religious and supernatural beliefs of the Mising tribes of Assam with special reference to the 'Dobur Uie'. Journal of Ethnobiology and Ethnomedicine 7: 16. doi: 10.1186/1746-4269-7-16

Slik JWF. Plants of Southeast Asia. 2009 onwards. https://www.asianplant.net/ (Accessed 11/08/2023).

Sofo A, Sofo A. 2020. Converting home spaces into food gardens at the time of Covid-19 quarantine: All the benefits of plants in this difficult and unprecedented period. Human Ecology *48*(2): 131-139. doi: 10.1007/s10745-020-00147-3.

Stuart G. StuartXchange. n.d. http://www.stuartxchange.com/index.html (Accessed 11/08/2023).

Talabis DA, Babierra AL, Buhat CA, Lutero DS, Quindala KM, Rabajante JF. 2021. Local government responses for COVID-19 management in the Philippines. BMC Public Health 21 (1711):1-15. doi: 10.1186/s12889-021-11746-0

Tardo J, Pardo-de-Santayana M. 2008. Cultural importance indices: a comparative analysis based on the useful wild plants of Southern Cantabria (Northern Spain). Economic Botany 62 (1): 24-39. doi: 10.1007/s12231-007-9004-5

Tropicos.org. Missouri Botanical Garden. 2023. https://www.tropicos.org/ (Accessed 11/08/2023).

Vitalini S, Iriti M, Puricelli C, Ciuchi D, Segale A, Fico G. 2013. Traditional knowledge on medicinal and food plants used in Val San Giacomo (Sondrio, Italy)-an alpine ethnobotanical study. Journal of Ethnopharmacology 145: 517-529. doi: 10.1016/j.jep.2012.11.024

World Health Organization. 100 days of COVID-19 in the Philippines: How WHO supported the Philippine response. 2020. https://www.who.int/philippines/news/feature-stories/detail/100-days-of-covid-19-in-the-philippines-how-who-supported-the-philippine-response (Accessed 11/08/2023)

Yinebeb M, Lulekal E, Bekele T. 2022. Composition of homegarden plants and cultural use in an indigenous community in Northwest Ethiopia 18 (47). doi: 10.1186/s13002-022-00545-5