

SURVEY OF GREEN LEAFY VEGETABLES IN KOLLEMCODE, KANYAKUMARI DISTRICT, TAMIL NADU.

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ABSTRACT

Green Leafy Vegetables (GLVs) are rich source of many nutrients and designated as nature's anti-aging wonders. GLVs (Green Leafy Vegetables) have excellent medicinal benefits. Concentration of functional compounds vary according to the climate season, their growth phase and their existence in particular plant part. Total 30 plant species collected belonging to 20 families and 30 genera from the study area, Kollemcode. 20 family tabulated based on botanical name, common name and mode of consumption. Among them, five plants belong to the family Amaranthaceae, followed by Apiaceae with 3 plant species, Fabaceae, Phyllanthaceae, Rutaceae, Araceae with 2 plant species. Most of the plants are herb (24 plant species) among them the remaining plants are shrub, (4 plant species), tree (1 plant species), climber (2 plant species). Among the 30 GLVs plants 16 are cultivated plants, 7 as wild and 8 as wild/cultivated. Mostly the leafy part of the plant species is used for cooling purpose and presents the medicinal uses.

Key words: Green Leafy Vegetables, Kollemcode, Amaranthaceae, Medicinal uses.

INTRODUCTION

GLVs (Green leafy vegetables) are vegetables whose young shoots, leaves and flowers are edible (Orech *et al.*, 2005). Green vegetables are widely designated as "protective foods" in human diet due to their varied health benefits show the richness in vitamins, essential fatty acids, minerals, amino acids and dietary fibre (Shukla *et al.*, 2016) and various essential bioactive compounds (Da *et al.*, 2017). They have excellent nutritional value and can be used for medicinal benefits (Popkin *et al.*, 2001). Concentrations of functional compounds vary according to the climate season, their growth phase and their existence in particular plant part (Elias *et al.*, 2012).

Green leafy vegetables mostly contain antioxidants, dietary fibers, minerals, 2-linoleic acid, and vitamins. Antioxidants reduce ferric ions and mitigate oxidative stress. Dietary fiber delay absorption of carbohydrates and improve insulin secretion. Minerals such as magnesium and phosphorous protect against gestational diabetes. 2-linoleic acid determines composition of phospholipid bilayer and insulin sensitivity within skeleton muscles. Vitamins such as α -tocopherol (vit E), β -carotene (vit. A), ascorbic acid

(vit. C) reduces oxidative stress (Anupam *et al.*, 2008). Green leafy vegetables with phytochemicals and enormous antioxidants have potential to work as anti-diabetic prevents CVD, anti-hypertensive, anti-carcinogenic, anti-hypertensive, anti-carcinogenic, anti-anemic, improves gut health (Khanna *et al.*, 2002).

GLVs (Green leafy vegetables) contain decent quantity of minerals, alpha tocopherols, vitamins, flavonoids, 2-unoieic acid, phytochemicals (Vishwakarma *et al.*, 2011). Bioactive component of green leafy vegetables that prevent from cancer includes beta carotene (Osawa *et al.*, 1994). sulphora phane (Cejkova *et al.*, 2016).

Antioxidant rich green leafy vegetables like garden spinach leaf, and green leaved amaranthus (Gupta and Prakash, 2009). The consumption of these may play a role in preventing human diseases in which free radicals are involved such as cancer, cardiovascular disease and aging (Archi Gulpta *et al.*, 2020).

Leafy vegetables hold an important place in well balanced diets. Green leafy vegetables are the cheapest of all within the reach of poor man richest in their nutrition value (Kuhnelin *et al.*, 1996). The lack of knowledge especially on the nutritive value of these green leafy vegetables among the public in general is the main draw back in their lower consumption (Ashok *et al.*, 2013). These leafy vegetables should be included as an essential component of our daily diet (Beulah *et al.*, 2020).

MATERIALS AND METHODS

Kollemcode is a municipality in Kanyakumari district. Kollemcode is situated in Tamil Nadu Kerala border. It is a coastal village with 33 wards on the banks of the Arabian sea. This village is famous for the Thookam festival celebrated in March or April (the date on which the Bharani star comes in meenam month in Malayalam Era. Erstwhile Ezhude Sam panchayat and Kollemcode Town panchayat were integrated to form Kollemcode municipality by the Government of Tamil Nadu (2021).

Floristic study

A large considerable leafy vegetable plants survey was conducted in March 2022 – October 2022. The green leafy vegetables growing in their natural habitats like grounds, road sides, open land, home gardens. Plant specimens were collected (depending upon their availability) from the area under investigation. These specimens were identified and photographed for the preparation of digital herbarium and field notes also maintained. Plant species were also differentiated on the basis of their habit, Taxonomic identification, and leafy vegetables characterization of each species with potential of use in floral art also recorded.

RESULT AND DISCUSSION

Total 30 plant species belonging to 20 families and 30 genera were recorded from the study area Kollemcode (Table 1). Based on botanical name, common name and mode of consumption the plant species are tabulated. Among them, five plant species belong to family Amaranthaceae, followed by Apiaceae (3 plant species), Fabaceae, Phyllanthaceae, Rutaceae, Araceae (2 plant species), each plant species reported in Moringaceae, Nyctaginaceae,

Talinaceae, Sapindaceae, Euphorbiaceae, Solanaceae, Lamiaceae and etc. Based on their growth habit most of the plants are herbs (24 plant species) among them the remaining plants are shrub, (4 plant species) tree (1 plant species) climber (2 plant species). The present study shows most of the leafy vegetables are cultivated in home garden. Among the 30 GLV's plants 16 as cultivated plants, 7 as wild and 7 as wild/cultivated.

Table 1: Plants used as wild leafy vegetables in the study area.

Sl. No.	Botanical Name	Family	Common Name
1.	<i>Acalypha inidica</i> L.	Euphorbiaceae	Kuppaimeni
2.	<i>Aerva lanata</i> (L.) Juss. ex Schult.	Amaranthaceae	Cheruvula
3.	<i>Allium cepa</i> L.	Amaryllidaceae	Onion leaves
4.	<i>Alternanthera sessilis</i> (L.) R.Br.	Amaranthaceae	Ponnangani keerai
5.	<i>Amaranthus cruentus</i> L.	Amaranthaceae	Red amaranth
6.	<i>Amaranthus viridis</i> L.	Amaranthaceae	Kuppai keerai
7.	<i>Amorphophallus paeoniifolius</i> (Dennst.) Nicolson.	Araceae	Elephant foot yam
8.	<i>Basella alba</i> L.	Basellaceae	Pasalai keerai
9.	<i>Boerhavia diffusa</i> L.nom.cons.	Nyctaginaceae	Punarnava
10.	<i>Cardiospermum halicacabum</i> L.	Sapindaceae	Mudakathan
11.	<i>Centella asiatica</i> (L.)	Apiaceae	Vallarai keerai
12.	<i>Cissus quadrangularis</i> L.	Vitaceae	Changalam paranda
13.	<i>Citrus limon</i> (L.) Osbeck.	Rutaceae	Lemon
14.	<i>Colocasia esculenta</i> (L.) Schott.	Araceae	Podi Chemb
15.	<i>Coriandrum sativum</i> L.	Apiaceae	Coriander leaves
16.	<i>Eclipta prostrata</i> (L.) L	Asteraceae	Karisalankanni keerai
17.	<i>Eryngium foetidum</i> L.	Apiaceae	Mexican coriander
18.	<i>Justicia adhatoda</i> L.	Acanthaceae	Adalodakam
19.	<i>Mentha piperita</i> L.	Lamiaceae	Puthina illai
20.	<i>Moringa oleifera</i> Lam.	Moringaceae	Moringa illai
21.	<i>Murraya koenigii</i> (L.) Speregel.	Rutaceae	Curry leaves
22.	<i>Pandanus amaryllifolius</i> Roxb.	Pandanaceae	Rambha illai
23.	<i>Peperomia pellucida</i> kunth.	Piperaceae	Pndanaceae
24.	<i>Phyllanthus niruri</i> L.	Phyllanthaceae	Keezharnelli
25.	<i>Sauropus androgynus</i> (L.) Merr.	Phyllanthaceae	Sweet keerai
26.	<i>Senna tora</i> (L.) Roxb.	Fabaceae	Takara illai
27.	<i>Sesbania grandiflora</i> (L.)	Fabaceae	Agathi keerai

Sl. No.	Botanical Name	Family	Common Name
28.	<i>Solanum nigrum</i> L.	Solanaceae	Manathakali
29.	<i>Spinacia oleracea</i> L.	Amaranthaceae	White spinach
30.	<i>Talinum fruticosum</i> (L.). Juss.	Talinaceae	Ceylon pasalai keerai

Mostly the leafy part of the plant species is used for cooling purpose followed by stem, fruit, flower parts. Green leafy vegetables recognized as the cheapest and most abundant source of food and medicine since long (Ramesh *et al.*, 2012). Green leafy vegetables are generally consumed in the cooked form apart from the Salads. Therefore, there is a need to assess the changes that occur in the antioxidant activity on cooking (Shanmugam *et al.*, 2010). Wild leafy vegetables seem to be widely and frequently used by the black population of the Northern province (Gowthami *et al.*, 2016). Green leafy vegetables are appreciated because they not only supply the protective nutrients and add variety to a monotonous diet but also have an alternative taste, pleasing appearance and aroma. These vegetables add the medicinal importance to our food. A source of vitamin, mineral, antioxidant, anti-aging, immunity booster and protect from many diseases and for healthy being.

There is a diversity of traditional green leafy vegetables available in the rural farming community studied. Only a few of them are domesticated and consumed frequently. The uncultivated and less utilized vegetables have the potential to make significant contributions to the micronutrient requirements of women and children, especially vitamin A and iron provided they are consumed frequently and in adequate amounts. The use of traditional leafy vegetables to improve intake of certain nutrients of public health importance could be a less expensive and more sustainable dietary strategy in the long term because of the availability and affordability. However, seasonal availability, and preference for certain species, are important considerations. There is a need for further studies to directly evaluate the quantity of GLVs consumed so that actual contribution of GLVs within the overall diet to micronutrient intakes of vulnerable groups in the community can be known.

CONCLUSION

Green leafy vegetable plants and their utilization is well recognized by the local communities. Majority of the local inhabitant are depending on wild vegetation for under-utilized leafy vegetables but over-utilized leafy vegetables plants were commercially cultivated. In some cases, over-utilization of such wild leafy vegetables may affect the diversity and create threats to the vegetation. Therefore, both wild and cultivated leafy vegetable plants need to be used in a sustainable manner. Using the present study as a baseline, if the nutrient compositions and other natural medicinal properties of the leafy vegetables, particularly underutilized species cooking be determined it would be possible to alleviate poverty and malnutrition in different corners of world.

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