ejpmr, 2022,9(3), 147-159

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

FRUIT AND VEGETABLE WASTE ARE BEING STUDIED AND USED IN MEDICINAL THERAPY

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Article Received on 28/12/2021 **Article Revised on 18/01/2022** **Article Accepted on 08/02/2022**

ABSTRAC

The fruit and vegetable zone generates massive quantities of waste. In industrialised nations, fruit and vegetable waste (FVW) is particularly generated earlier than attaining purchasers because of programmed overproduction and unfulfilled high-satisfactory standards. FVW poses environmental troubles because of its excessive biodegradability and represents a lack of treasured biomass and a monetary fee for companies. Different reduction, reuse, and recycling techniques to address FVW were proposed. This examine geared toward documenting the healing software of FVW utilized in phytomedicine amongst groups dwelling in Tiruchirappalli. The examine become carried out among August and December 2021 in numerous locations in Tiruchirappalli. Information become accumulated from semi-established questionnaires. A general of fifty medicinal vegetation had been recorded. The plant species had been labelled into 34 households and had been grouped beneath numerous medicinal classes. Cucurbitaceae become the plant own circle of relatives with the maximum species. The waste is normally made from seeds, pores and skin, rind, and pomace, which might be wealthy in doubtlessly treasured bioactive compounds like carotenoids, polyphenols, nutritional fibres, vitamins, enzymes, and oils. These phytochemicals may be utilized in a lot of industries, inclusive of the meals enterprise to broaden useful or enriched foods, the fitness enterprise to broaden drug treatments and pharmaceuticals, and the fabric enterprise, amongst others. The use of waste to provide numerous essential bioactive additives is an essential step towards sustainable improvement. This evaluation discusses the different sorts and traits of waste derived from culmination and veggies, in addition to the bioactive additives within side the waste, extraction strategies, and capacity packages of the acquired bioactive compounds. Pharmacological research at the vegetation with excessive percent use values and constancy stages are had to validate their makes use of with inside the control of the healing packages mentioned. Further studies at the isolation and characterization of the lively compounds in vegetation ought to result in the invention of recent capacity drugs.

KEYWORDS: - Fruit and Vegetable waste, Sustainable improvement, Drug Treatments and Pharmaceuticals.

INTRODUCTION

Fruits and veggies play an essential function in our diets and in human life, so call for for such essential meals commodities has risen dramatically due to the world's developing populace and converting nutritional habits. Increased manufacturing and growth, mixed with a loss of right dealing with techniques and infrastructure, have led to large losses and waste of those crucial meals commodities, in addition to their constituents, through-merchandise, and residues. Losses and waste arise during the deliver and dealing with chain, inclusive of harvesting, transportation to packinghouses or markets, class and grading, storage, marketing, processing, and at domestic earlier than or after practise. Losses arise during the deliver chain, starting with manufacturing and persevering with thru all postharvest tiers earlier than consumption. Losses and waste may be quantified and qualitatively assessed.[1-2] They seek advice from loads or volumes in a quantitative sense, which reduces the quantity of meals to be had for consumption. They constitute qualitative decreases in edibility, vitamins, caloric value, client acceptability, and monetary value, all of which might be acknowledged earlier than the meals object is discarded. It is not unusual place for losses to be extra in so-referred to as growing nations because of a loss of right dealing with strategies, while waste is extra in advanced nations and prosperous societies in growing nations. In different words, meals losses are often as a result of technical barriers in infrastructure and dealing with, which includes storage, packing, packaging, and marketing, while meals waste is often as a result of negligence or an aware choice to throw meals away. These meals wastes are a part of unintended and intentional losses that may result in wastage of agricultural through-merchandise. The unintended losses consist of insufficient farming

technology and a loss of right transportation, while the intentional losses consist of the ones because of human consuming habits. Approximately 45% of culmination and veggies are wasted worldwide, that's one of the classes with the best wastage rate. The use of plant species as conventional drug treatments presents an actual alternative for healthcare offerings for rural groups of growing nations.[3-6] It has been expected that round 80% of the populace in growing nations relies upon on conventional medicinal drug for his or her number one fitness care system. These conventional drug treatments are fee-effective, secure, and affordable.[7-9] Globally, about 85% of the conventional drug treatments utilized in number one healthcare are derived from vegetation.[10] Therefore, medicinal vegetation are an indigenous background of world importance.[11] Out of the 422,000 flowering plant species suggested,[13] 50,000 are used medicinally.[12] At present, studies on conventional makes use of plant species has attracted the eye of the medical community. Various people have suggested indigenous understanding of medicinal vegetation from distinct components of Pakistan,[15-20] and few reviews were posted in current years.[21–26] Vegetable through-merchandise are the secondary merchandise which can be regularly discarded or wasted in the course of production or different tiers of meals processing. Up to one-1/3 of veggies might be wasted within side the practise process. Interestingly, sure components of the veggies are knowingly wasted because of their adverse flavor or texture. For example, vegetable components, which includes hulls, bagasse, and seeds, are normally discarded within side the manufacturing line. For sure varieties of veggies, which includes broccoli, cauliflower, and pumpkin, the stems and leaves aren't fed on and thrown away. Indeed, it's far expected that approximately 45% of the meals produced is misplaced or wasted earlier than and after attaining the client, with all of the steps of the meals deliver chains (number one manufacturing, post-harvest, processing, distribution, and consumption) best as a 2nd option, subjecting it to practise for re-use, recycling, recovery, and disposal. Moreover, member states are asked to undertake 3 factors for the right control of bio and FW: (i) the separate series of bio-waste to be able to the composting and digestion of bio-waste; (ii) the remedy of bio-waste in a manner that fulfils a excessive stage of environmental protection; and (iii) the usage of environmentally secure substances comprised of bio-waste. The goal of this paper is to examine the present day practices associated with the numerous culmination and vegetable waste control tasks and welfare of the society.

MATERIALS AND METHODS

Methods

Information become acquired thru interviews the use of semi-established questionnaires. Field tours with fruit store, juice store, domestic and vegetable store creditors had been carried out. Descriptive facts had been used to give the records. Fidelity ratios and informant consensus agreements had been calculated.

METHODOLOGY

Tiruchirappalli District is one of the 38 districts positioned alongside the Kaveri River in Tamil Nadu, India. The headquarters of the district is the town of Tiruchirappalli, additionally called Trichy, at range 10o 48' 55.80" N and longitude 78o 41’ 47.44" E. The examine location become investigated to get statistics from the fruit and vegetable store and additionally to go test the records supplied through the opposite practitioners in the course of the sooner visits. Regular area surveys had been carried out from August 2021 to December 2021 in Tiruchirappalli District with a view to record the utilisation of medicinal vegetation. Several aid people, or informants, or conventional healers, had been diagnosed to get the ethnomedicinal statistics thru direct interviews or oral discussions. The statistics accumulated concerning the medicinal makes use of of vegetation become analysed well and documented. The vegetation had been diagnosed taxonomically the use of the Flora of the Presidency of Madras, the Flora of Tamil Nadu, and the Flora of Tamil Nadu Carnatic.[25,26,27]

RESULTS AND DISCUSSION

This examine found out 50 plant species disbursed amongst 34 households which can be often used as culmination and veggies. The suggested vegetation had been organized in line with their medical name, own circle of relatives, components used, healing makes use of, and approach of utilization of natural arrangements. It is extra obtrusive from this examine that the plant species belonging to the own circle of relatives Rutaceae, Cucurbitaceae, Amaryllidaceae, Poaceae, Zingiberaceae, Myrtaceae, Punicaceae, Annonaceae, Mucaceae, Bromeliaceae, Leguminaceae, Sapotaceae, Solanaceae, Vitaceae, Moringaceae, Anacardiaceae, Moraceae, Convolvulaceae, Phyllanthaceae, Amaranthaceae, Actinidiaceae, Asphodefaceae, Fabaceae, Sapindaceae, and Dioscoreaceae. Different components of medicinal vegetation had been used as medicinal drug through the neighbourhood conventional healers. Fruit peel (72%), seed (14%), shell and stalk (4%), stem, flower, and leaf (2%), and stem, flower, and leaf (2%), had been the maximum often used plant components. These medicinal vegetation are acknowledged to treatment numerous varieties of illnesses. The major illnesses within side the examine location had been snake bites, asthma, coughs and colds, pores and skin disorders, dysentery, diabetes, fever, wound healing, jaundice, and belly troubles. Different varieties of arrangements had been crafted from plant species, inclusive of juice, paste, decoction, and entire plant extract. Many vegetation had been even utilized in multiple sort of combination. Due to the worldwide intensification of meals manufacturing, which has resulted within side the introduction of massive portions of meals co-merchandise and wastes, there has currently been sizeable social and environmental strain for the green reutilization of agricultural enterprise

residues. The large waste of meals fabric is as a result of a loss of manipulate over such agri-financial system practises. Because meals enterprise through merchandise are excessive in vitamins, they've several fitness advantages. These byproducts comprise an excessive awareness of bioactive compounds, nutraceuticals, and different useful foods.[15-25] By-product utilisation presents a further supply of earnings for industries, thereby contributing to extended monetary productivity. So, the techniques defined above are a number of the easy strategies for decreasing fruit and vegetable waste in industries and households. Some of the advantages of waste utilisation derived from the techniques defined above consist of: Environmental pollutants prevention a precise supply of vitamins for the human populace, Different varieties of value-introduced merchandise may be prepared, assisting in fixing the hassle of meals scarcity. Soil is a great supply of vitamins and may boom the fertility of soil. Solving the troubles of salinity risks can boom the monetary returns of the enterprise.[26-34]

Table 1: Utilization of medicinal plants for drug therapy.

S. No.	Common name	Scientific name	Local name	Family	Part of the Plant	Medicinal uses	Bioactive compound
1.	Pomegranate	*Punica granatum*	Maathulai	Punicaceae	Fruit peel	● The peels are packed with powerful antioxidants that help fight against dangerous and life threatening heart diseases. ● Due to its healing qualities, pomegranate peels can efficiently combat acne, pimples as well as rashes. ● Fights against wrinkles and ageing. ● Acts as a natural moisturiser, Effective sun block agent.	Tannins, Flavonoids, Polyphenols, Some Anthocyanin, Cyanidins, Delphinidins.
2.	Lemon	*Citrus limon*	Elumitchai	Rutaceae	Fruit peel	● When we wash silver cooking utensils or brass cooking utensils by using of lemon peels it will come very clean and too shine to see our face. ● High nutritional value. ● Lemon peel has antibacterial properties that may block the growth of microorganisms responsible for oral diseases. ● Lemon peel contains flavonoids and vitamin C, which may stimulate your body's immune system to protect your health.	y-Terpinene, Terpinolence, d-Limonence, citral.
3.	Orange	*Citrus x sinensis*	Orange	Rutaceae	Fruit peel	● Support healthy heart, Prevent Allergies, Prevent Cancer, Reduce weight, Better Digestion, Cure Hangover, Treat skin problems, Cures Asthma. ● Polish wood, make a bird feeder, create some orange peel jewellery.	Monoterpenes, d-limonence, Oil
4.	Banana	*Musa*	Vaalaipalam	Musaceae	Fruit peel	● Polish your shoes; banana peels are an all-natural way to keep your leather	Polyphenols, Carotenoids, Others.

						or faux-leather shoes shiny and sparkling. ● Moisturize your feet ● Reduce undereye puffiness ● Soothe bug bites ● Treat acne ● Remove warts ● Shine and fertilize plants ● Remove splinters	
5.	Custard apple / sugar apple	*Annona squamosa*	/Seethapalam	Annonaceae	Fruit peel	● High in antioxidants ● May boost your mood ● May benefit eye health ● May prevent high blood pressure ● May promote good digestion ● Some of the compounds in cherimoya may help fight cancer ● May fight inflammation ● It's support to immunity	Proanthocyanidins, 18 Different phenolic compounds, Alkaloids, Flavonoids
6.	Watermelon	*Citrullus lanatus*	Tharboosani	Cucurbitaceae	Fruit peel	● May boost libido ● Workout booster ● Reduces blood pressure ● Rich in fibre	Phenol, Flavonoid, Saponin, Alkaloids, Oxalate
7.	pumpkin	*Cucurbita*	Parangikaai	Cucurbitaceae	Fruit peel	● Deep cleansing and corrective ● Firming ● Increased blood circulation ● Fights free radical damage; Antioxidants found in pumpkin help to defend your skin cells against oxidative damage.	Carbohydrates, Amino acids, Proteins, Phenols, Softening enzymes, Hydrolytic enzymes, Antioxidant enzymes
8.	Jackfruit	*Artocarpus heterophyllus*	Palaa palam	Moraceae	Fruit peel	● The peels of the fruit found to contain immense phytochemicals like phenolic acids, hydroxybenzoic acids, flavanols with anti-inflammatory, anti allergic,anti healing and anticancer properties.	Cellulose, Pectin, Protein, starch
9.	Mosambi / sweet lime	*Citrus limetta*	Saathukudi	Rutaceae	Fruit peel	● Aids digestion ● Relieves constipation ● Prevents scurvy ● Peptic ulcers ● Respiratory problems ● Improves the immune system ● Anti cancer properties ● Protection against rheumatoid arthritis ● Cure urinary disorders ● Relief from motion sickness ● Benefits the nervous	Polyphenols, Flavonoids,Dietary fibre, oil

						system ● Treatment of jaundice ● It has hair and skin benefits.	
10.	Muskmelon	*Cucumis melo*	Mulam palam	Cucurbitaceae	Fruit peel	● Rejuvenates and hydrates skin ● Help in skin regeneration ● Prevents premature ageing ● Treat eczema and other skin conditions ● Treats chapped lips ● Combats hair loss ● Works as a natural conditioner ● Makes hair strong.	Phenolic compounds, Pectins
11.	Sugar cane	*Saccharum officinarum*	Karumbu	Poaceae	Stem	● Strong bone and teeth ● Rich in antioxidants ● Enhances liver function ● Maintains kidney health	Alkane, Ester, Alcohol, Fatty acids
12.	Ridge gourd	*Luffa accutangula*	Peerkangai	cucurbitaceae	Fruit peel	● Diabetics, skin disease.	Fiber, Essential and non essential Amino acids, Antioxidant, Phenolic acids
13.	Pine apple	*Ananas comosus*	Anaachi	Bromeliaceae	Fruit peel	● Anti inflammatory ● Digestive acid ● Immune booster ● Arthritis and joint pain fighter ● Vision protector ● Anti - cancer	Proteins, Lipids, Crude fibres ,carbohydrates
14.	Groundnut	*Arachis hypogaea*	Nilakadalai	Fabaceae	Fruit	● Manufacture of soap ● Cosmetics ● Wall board ● Plastics ● linolium	Cellulose, hemicelluloses, lignin, silica, iron oxides, alumina, calcium oxide
15.	Apple	*Malus domestica*	Apple	Malaceae	Fruit peel	● antioxidants that shown to process anticancer properties ● it present the several types of cancer	polyphenols are divided into different class, they are flavanols, [catechin,epicatechin and procyanidins, flavonols[quercetin glycosides], dihydrochalcones [phloridzin], hydroxycinnamic acids[chlorogenic acid]
16.	papaya	*Carica papaya*	papaali	Caricaceae	Fruit peel	● It remove dead skin cells that can clog pores.	Carotenoids,Vitamin C, Thiamine,

							Riboflavin, Niacin, Vitamin B-6, Vitamin k
17.	Sapota / sapodilla	*Manilkara zapota*	sapota	Sapotaceae	Fruit peel	• Rich in antioxidants • Reduce cell damage from free radicals and essential for good in health.	Caffeoyl quinic acid, Hydroxybenzoic acids[p-hydroxybenzoic, gallic and ellagic], Flavanols[catechin and epicatechin], Flavonols [quercetin], Hydroxycinnamic acids [ferulic, chlorogenic and trans-cinnamic], Kaempferol.
18.	Rose	*Rosa indica*	roja	Rosaceae	Petals	• Reducing anxiety • Improving digestion • High in antioxidants • Contains antimicrobial properties • Reducing inflammation • Contains vitamin c.	Cyanidin 3,5-di-o-glucoside, Peonidin 3-o-sophoroside, Peonidin 3,5-di-o-glucoside, Peonidin 3-o-glucoside There are anthocyanin compounds.
19.	Guava	*Psidium guajava*	Koyya palam	Myrtaceae	Fruit peel	• Rich in fibre and antioxidants • Antidiabetic and antiglyceamic properties help to control blood glucose level to manage diabetes.	Gallic acid, Galangin, Kaempferol, Homogentisic acid, Cyaniding 3 – glucoside
20.	Potato	*Solanum tuberosum*	urulaikilangu	Solanaceae	Fruit peel	• Cure gas problems.	Starch, Non-starch polysaccharide, Protein, Acid-soluble and acid insoluble lignin, Lipids, Ash, Glycoalkaloids
21.	Grape	*Vitis vinifera*	Thirachai palam	Vitaceae	Seed	• Grape seed extract is reducing complications related to diabetes lowering cholesterol, preventing cancer, and wound healing.	Proanthocyanidins(type of antioxidant., Vitamin c and e, β-carotene.
22.	Coconut	*Cocos nucifera*	thaengaai	Arecaceae	Fruit peel	• Used to make coco husk chips • Coco peat • Coir fiber	Phytohormone, Auxin, Cytokinin, Gibberellin,

						• Coco crush	Inorganic ion, Vitamin, Minerals
23.	Drumstick tree/ moringa tree	*Moringa oleifera*	Murungai	Moringaceae	Fruit peel	• It will nourish your skin naturally • Against common cold • Against flu	Phenols, Flavanoids, Glycosides, Tannins
24.	Tamarind	*Tamarindus indica*	puli	Zingiberaceae	Fruit peel	• Against heart disease • Cancer • Diabetes • Helps in weight loss • It can help you deal with allergies.	Tartaric acid, Sugars (glucose and fructose), Vitamin b, calcium
25.	Mango	*Mangifera indica*	Maam balam	Anacardiaceae	Fruit peel	• It help to prevent or fight cancers including lung, breast, brain, spinal cord cancers. • Rejuvenate skin • Eliminate acne • Promotes blood circulation • Acts as anthelmintic • Helps to lose weight • Prevent menstrual problems	Phenolic acids, Gallic, Syringic, Methyl digallate ester, Methyl gallate, Gallotannins, Galloyl glucose, Theogallin, Protocatechuic, Ferulic acid
26.	Garlic	*Allium sativum*	poondu	Amaryllidaceae	Fruit peel	• Relieve muscle cramps • Induce sleep • Add nutrients to the compost • Treat throat soreness • Hair growth • Alleviate itchy skin	Allicin, Alliin, Diallylsulfide, Diallyl disulfide, Diallyl trisulfide, Ajoene, S-allyl-cysteine
27.	Ginger	*Zingiber officinale*	ingi	Zingiberaceae	Fruit peel	• Perfume steamed fish and vegetables. • Make an all purpose ginger broth. • Add them to brines and marinades.	Phynolic components (gingerols,shogaols,paradols.), Quercetin, Zingerone, Gingerenone-A, 6-dehydrogingerdione, There are several terpene components also present.
28.	Onion	*Allium cepa*	vengayam	Amaryllidaceae	Fruit peel	• DIY dye for wool • Cure leg cramp • Add them to compost heap • An effective hair dye • Dye for eggs • Uses in the soup • Uses in wheat flour.	Flavonoid,Phenol content, High Carbohydrate, Low protein
29.	Bottle gourd/ calabash	*Legenaria siceraia*	suraikaai	Cucurbitaceae	Peel	• They are rich in fibre • Good for digestion • Better metabolism • They are also dubbed to be beneficial for managing diabetes and	Carbohydrates, Dietary constituents, Minerals, Vitamins, Amino acids

						blood sugar ● The low calorie content in lauki as a whole may also help in reducing weight.	
30.	Cucumber	*Cucumis sativus*	Vellari kaai	Cucurbitaceae	Fruit peel	● Rich in fibre ● It contain minerals like magnesium, Potassium, Silica. ● It also hydrates our skin, improves complexion and vision.	Flavonoids, Saponins, Alkaloid, Steroids.
31.	Dates / date palm	*Phoenix dactylifera*	Perichai	Arecaceae	Seeds	● Animal feed ● Produce caffeine-free coffee. ● Date seed oil is replaced oils in body creams,shampoo and shaving soap formulations.	Proteins, Fat, Essential amino acids, Dietary fibre, Phenols, Antioxidants
32.	Oil palm	*Elaeis guineensis*	panai	Arecaceae	Mesocarp fiber	● Producing paper and paper powder and animal feed.	Cellulose, Lignin, Hemicelluloses, Holocellulose, Ash content, Moisture, Pentosan, Arabinose , Xylos, Mannose, Galactose, Glucose.
33.	Sweet potato	*Ipomoea batatas*	Sakkarai valli kilangu	Convolvulaceae	Fruit peel	● Highly nutritious ● Promote gut health ● Increase feelings of fullness ● Prevent chronic disease. ● Rich in fibre	Ash, Fat, Protein, Fibre, Carbohydrate, β –carotene
34.	Amla /gooseberry	*Phyllanthus emblica*	Nellikaai	Phyllanthaceae	Seed	● High nutritive value ● Effective against oral disease ● Pruritis.	Flavonoids, Terpenoids, Tannins, Ellagic acid, Emblicanine A, Emblacani B, Gallic acid, Phyllantine, Quercetin, Phyllantidine.
35.	Strawberry	*Fragaria ananasea*	Strawberry	Rosaceae	Fruit peel	● It remove the skin dead cells ● Have acne can we strawberries to get rid of the skin condition. ● They have strong astringent, anti - inflammatory, anti oxidants properties that treat burns,protect your skin from uv rays ● And delay ageing.	Ascorbic acid, Phenolics, Flavonoids, Anthocyanins .
36.	Corn	*Maize*	Muthusolam	Poaceae	Corn cob,	● Make ethanol	Glucose,

					stalk	• Make electricity from corn stover	Xylose, Arabinose, Galactose, Mannose, Acetyl groups, Uronic acids, Lignin and ash.
37.	Plum	*Prunus domestica*	Plums	Arecaceae	Seed	• Rich in antioxidants • Reduce blood sugar • Bone health • Constipation relief	Flavonoids, Phenolic acids
38.	Jamun	*Syzygium cumini*	Naaval palam	Myrtaceae	Seed	• May help manage diabetes • Boosts stomach health • Helps regulate blood pressure • May boost immunity • Aids weight loss	Carbohydrates, Proteins, Calcium, Fat, Phosphorous, Mineral matter, Iron, Fibre.
39.	Kiwi	*Actinidia*	Pasali palam / kiwi	Actinidiaceae	Fruit Peel	• They are rich in antioxidants • The skin can be great for yours • They are rich in fibre	Moisture, Proteins, Crude fat total carbohydrate, ash
40.	Aloes	*Aloe vera*	katralai	Asphodelaceae	Outer layer/peel	• It help to moisturize the skin . • Prevent the peeling • Plant's anti-inflammatory benefits.	Phenolic compounds, Cinnamic acids, Chromones, Anthracene compounds, Flavonoids, Oxylipin
41.	Beetroot	*Beta vulgaris*	Beetroot	Amaranthaceae	Peel	• High in vitamin C , vitamin A • Have a good supply of antioxidants. • Protect from signs of aging	Phenolic content , 2,2 diphenyl-1-picrylhydrazyl, And 2,2-azino-bis(3-thylbenzothiazoline-6-sulfonic acid
42.	Pea	*Pisum sativum*	pattani	Fabaceae	Fruit peel	• Pea peel waste as a cost-effective carbon source for bacterial cultivation to produce cellulose • An enzyme that is widely used in food processing • And detergent market, textile industry.	Hemicellulose, Cellulose, Lignin, minerals
43.	Lychee	*Litchi chinensis*	Vilatchi / lychee	Sapindaceae	Seed	• The seeds of lychee fruit are purported to have pain relieving properties • It is traditionally drunk as a tea made from powdered seeds. • It is also used to kill intestinal worms	Leucocyanidin, Cyaniding glycoside, Malvidin glycoside, saponins
44.	Knol khol /	*Brassica*	Nookal	Brisicaceae	Peel	• Reduce blood glucose	Alkaloids,

	kohlrabi	*oleracea*				• Reduce cholesterol levels.	Glycosides, Steroids, Flavonoids, Saponin,Tannin ,Terpenoids, phytosterols
45.	Ladies finger	*Abelmoschus esculentus*	vendaikai	Malvaceae	Upper stalk	• Increasing memory power	Ascorbic acid, Thiol, phenol
46.	Carrot	*Daucus carota*	Carrot	Apiaceae	Peel	• skin shining • increase immunity	Carbohydrates, protein, fat, moisture, crude fibre
47.	Dragon fruit	*Selenicereus undatus*	Dragon palam	Cactaceae	Fruit peel	• Helps reduce acne • Presence of vitamin C • Make the skin glow	Sugar content, Fibre, Phenolics, Antioxidants,Vitamin C, Iron
48.	Tea plant	*Camellia sinensis*	Tea	Theaceae	Tea powder waste	• It is used as • cosmetics, • Fertilizers, • And Instant teas, • Medical, • Nutritional supplements. • Tea waste makes a high protein cattle feed after removal of the tannic acid that interferes with protein metabolization.	Chloride, Sulphate, Phosphorus, Organic matter, Calcium, Magnesium.
49.	Cherry	*Prunus avium*	cherry	Rosaceae	Fruit seed	• Antioxidants are substances that may protect your body from disease • And preventing cell damage • Cherry pit infused whipped cream	Fat, Protein, Fiber, Carbohydrates, ash
50.	Yam	*Dioscorea*	Karunai kilangu	Dioscoreaceae	Tuber peel	• Yam peel contains proteins and vitamin B complex • It will help to reduce the blood sugar level.	Alkaloids, Tannins, Flavonoids, Saponins glycoside, Steroids.

Table 2: Total number of families used in this survey.

Family	Number of families	Percentage
Punicaceae	1	2%
Rutaceae	3	6%
Musaceae	1	2%
Annonaceae	1	2%
Cucurbitaceae	6	12%
Moraceae	1	2%
Poaceae	2	4%
Bromeliaceae	1	2%
Fabaceae	2	4%
Malaceae	1	2%
Caricaceae	1	2%
Sapotaceae	1	2%
Rosaceae	3	6%

Myrtaceae	2	4%
Solanaceae	1	2%
Vitaceae	1	2%
Arecaceae	3	6%
Moringaceae	1	2%
Zingiberaceae	2	4%
Anacardiaceae	1	2%
Amaryllidaceae	2	4%
Convolvulaceae	1	2%
Phyllanthaceae	1	2%
Actinidiaceae	2	4%
Asphodelaceae	1	2%
Amaranthaceae	1	2%
Sapindaceae	1	2%
Brisicaceae	1	2%
Malvaceae	1	2%
Apiaceae	1	2%
Cactaceae	1	2%
Theaceae	1	2%
Dioscoreaceae	1	2%

Table 3: Habit of the plant parts.

Herb	Shrub	Tree	Climber	Creeper	Small tree
34%	12%	26%	12%	8%	8%

Table 4: Parts of plant used.

Peel	Seed	Stem	Flower	Shell	Leaf	Stalk
72%	14%	2%	2%	4%	2%	4%

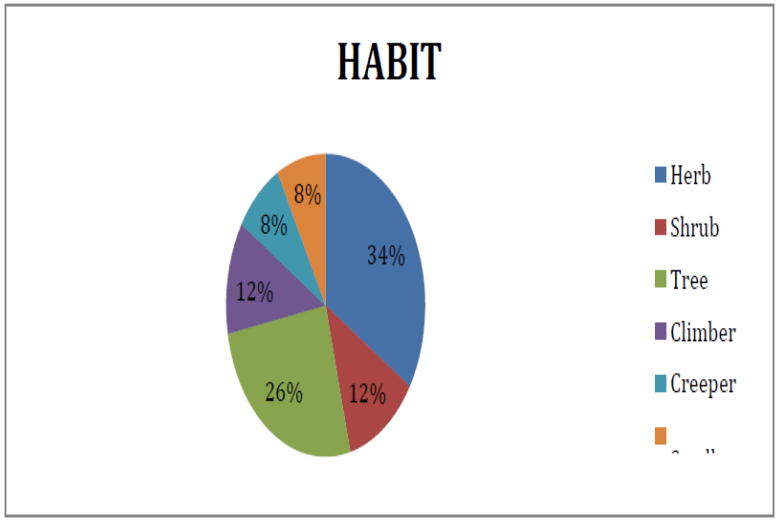

Figure 1: Total number of habit percentage.

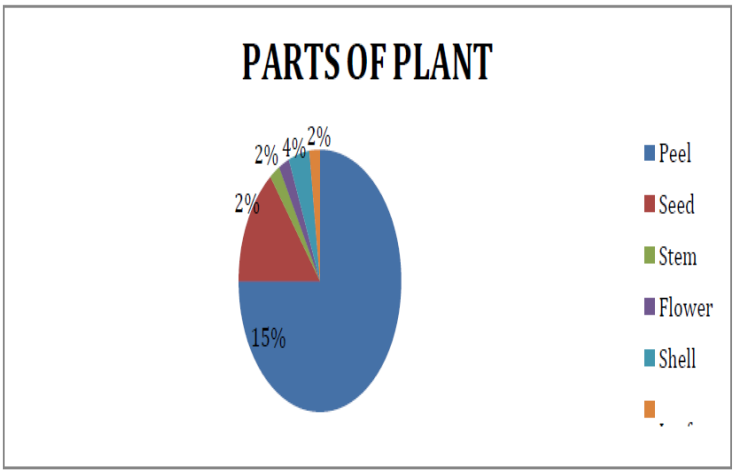

Figure 2: Total number of parts of plant percentage.

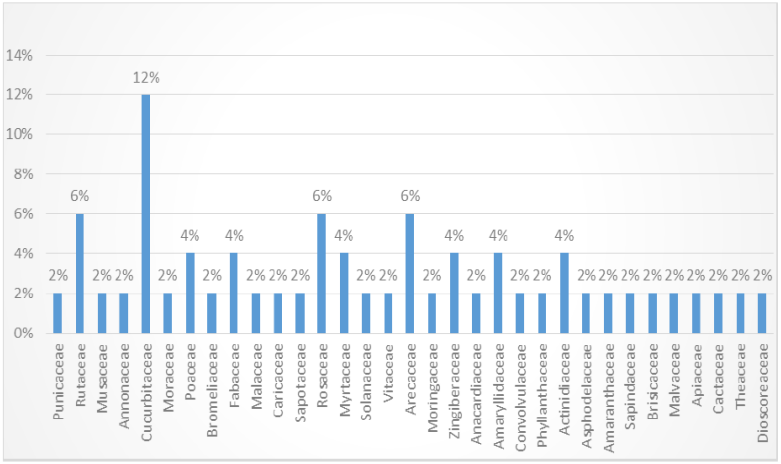

Figure 3: Total plant species percentage.

CONCLUSION

This evaluation highlights the manufacturing, nature, and varieties of waste originating from culmination and veggies. It additionally discusses the goal bioactive compounds which includes nutritional fibres, phenolic compounds, flavours, enzymes, and natural acids found in FVW. It demonstrates the big quantity of losses and waste, now no longer best the sizeable quantity of nonedible substances, however additionally the big quantity misplaced and wasted because of loss of good enough dealing with operations which includes insufficient area control, harvest, class, transportation, storage (temperature and relative humidity) and marketing, and enterprise infrastructure, in addition to waste generated because of discarding sizeable quantities for various reasons. These sizeable big quantities of misplaced and wasted culmination and veggies, and their additives, constitute now no longer best losses of safe to eat meals substances however additionally the losing of through-merchandise inclusive of bioactive compounds of fantastic capacity advantages for numerous industries and makes use of. Extraction strategies, traditional and nonconventional, are defined comprehensively. There is a want to utilise extra novel strategies with admire to the waste substances to obtain better retrieval costs of bioactive compounds. Extracted compounds may be utilized in meals, pharmaceuticals, cosmetic, and chemical industries, and additionally in meals studies, and the improvement of useful foods.

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