

Status of Natural Medicinal Plants and Food Supplements Which Are Used In Seasonal Variations

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Abstract: Siddha medicine leads us the way to provide the diet patterns and habits as per the changes in the environment. Environmental changes cause many diseases in us. The aim of this study was to review the medicinal plants and food supplements intake according to the climate changes. Pararasasekaram is one of the most ancient Siddha text of Sri Lanka, this text denote some medicinal plants can be used as food supplement which were not identified the scientific names yet. The collection of information was done through the available resources such as ancient literatures, journals and literature source of website focusing on diet pattern according to the seasonal variation. We could find 188 medicinal plants in the nature as per the change in the environment. Out of 188 medicinal plants 53 plants consume as fresh fruit, 48 plants consume as fresh juice, 51 plants consume as spinach, 47 plants consume as soup, 41 plants consume as dessert and 41 plants consume as soft drink. Out of 188 medicinal plants 74 types of fruits, 65 types of leaves, 42 types of seeds and 28 ripe fruits are used as food supplements. Out of these 103 plants use in winter, 126 plants use in spring, 135 plants use in summer and 122 plants use in autumn. To healthy and strong life we ought to intake herbal foods as per the seasonal variation.

Key words: Pararasasekaram, Seasonal variation, Siddha medicine

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I. Introduction

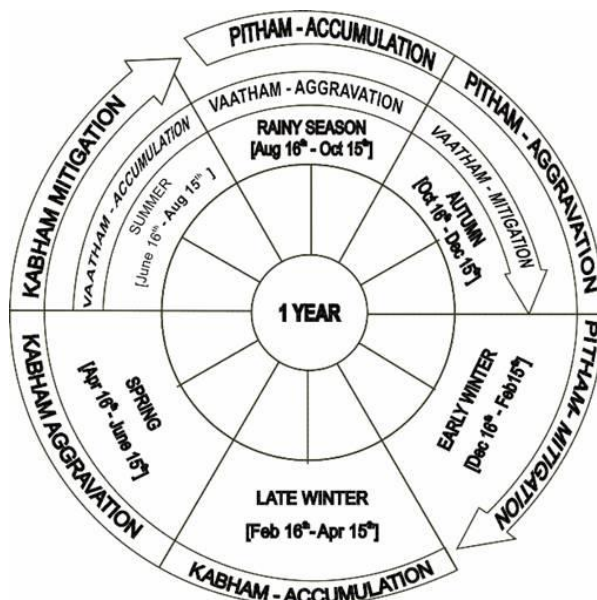
Traditional medicine was introduced before the era of modern medicine, based on cultural beliefs and practices were handed down from generation to generation. The prime principle of Traditional system of medicine is preventive aspect, this can be achieved by the change in diet and practices in response to change in climatic condition. Medicinal herbs are plants or parts of plants contain properties or compounds that can be used for therapeutic purposes and used as food supplements. Food supplements defined as foodstuffs that are meant to supplement the normal diet and which have concentrated sources of nutrients or other substances with a nutritional or physiological effect, alone or in combination. Lifestyle disorders are very common in the present era, basically originating from lack of following seasonal regimens due to lack of concentration in seasonal characteristics. Siddha Medicine has described various rules and regimens regarding diet and behavior to acclimatize seasonal enforcement easily without altering body homeostasis.

II. Literature review

Season and its duration according to Siddha Medicine

No	Name of Season in Siddha	Name of Season	Period
1	Munpani	Early Winter season	Mid December - Mid February
2	Pinpani	Latter Winter season	Mid February - Mid April
3	Ilavenil	Early Summer season	Mid April - Mid June
4	Mudhuvenil	Latter Summer season	Mid June - Mid August
5	Kaar	Early Rainy season	Mid August - Mid October
6	Koothir	Latter Rainy season	Mid October - Mid December

Seasonal conduct (Kaaloazhukkam)



The structures out the guidelines to be followed in different seasons to prevent illnesses and help one's wellbeing. The guidelines are related to modifications in diet, lifestyle, etc. with respect to a particular season.

Seasons, its changes in body and prevention of changes

Season	Changes in body	Life style
Early Winter	<ul style="list-style-type: none"> Hale & healthy The skin shrinks Goose skin The pores of the hairs closes Inner body temperature increases More appetite 	<ul style="list-style-type: none"> Preferable foods - Sweet, Sour, Astringent Take Oily foods Take food early Apply oil to the head Use astringent bath powder Take warm water bath Use perfumes Use silk & woolen bed sheets Take evening sunlight bath Brisk physical activity
Latter Winter	<ul style="list-style-type: none"> Setback in the physical strength due to the hot Sun Warm Dryness Irritation in the throat 	<ul style="list-style-type: none"> Preferable foods - Sweet, Sour Take Oily foods Apply oil to the head Use astringent bath powder Take warm water bath Use perfumes Use silk & woolen bed sheets Take evening sunlight bath Brisk physical activity The residence free from cold wind
Early Summer	<ul style="list-style-type: none"> Kapha diseases 	<ul style="list-style-type: none"> Preferable foods - old rice and dhal, cow's ghee, vegetables, fruits Fruits - Banana, mango, jack, grapes Sugar cane juice, sugar candy, honey Snacks - wheat, rice, groundnut, horse gram, ghee Take luke warm water bath Swimming – in evening Boiled & cooled water - liquorise, sandal, vettriver Residence – shady place Avoid sour, sweet, cold & oily Don't sleep during day time Mild perfume Light exertion
Latter Summer	<ul style="list-style-type: none"> Vatha diseases 	<ul style="list-style-type: none"> Take sweet, moist, oily & quickly digestible foods Take Samba rice Take meat of goat, ram, antelope, wild pig, sparrow, skylark, grouse, local birds, chicken, goose, hen and egg Take banana, grapes, jack, pomegranate, Panchamirtha Avoid salt, sour, bitter & alcohol

		<ul style="list-style-type: none"> • Avoid too much exposure to sun • Avoid too much exertion • Residence - farm houses with flowery plants
Early Rainy season	<ul style="list-style-type: none"> • Losses natural stamina • Weak 	<ul style="list-style-type: none"> • Take sour, salt, dried, oily foods • Take Fresh vegetables, fruits • Pulses – dhal, black gram, green gram, cereals • Well cooked meat • Consume old toddy • Easy digestible foods • Sandal perfume • Wear Wool/ Leather foot wear • Use blanket • Avoid hard labour • Avoid day sleep • Avoid river water bathing
Latter Rainy season	<ul style="list-style-type: none"> • Pitha increases 	<ul style="list-style-type: none"> • Take green gram, samba, greenystemed millet, sprouted dhal, goat’s milk, Indian gooseberry, snake gourd, yam, immature banana, banana flower, honey, green leaves • Avoid ghee, animal fat, liquor, toddy • Avoid over eating • Avoid day sleep • Spend time in moon

- The Winter season gives good health both for human beings and the plants.
- Early Summer and the latter part of the rainy season give moderate health.
- Early rainy season and latter part of the Summer are the periods of diseases.
- Herb refers to any part of the plant like fruit, seed, stem, bark, flower, leaf, stigma or a root, as well as a non-woody plant.
- The medicinal plants are also used as food, medicine or perfume and also in certain spiritual activities.
- The medicinal plants have flavonoid, terpenoid, alkaloids, diterpenes, tannins, glycosides and other phenolic compounds.
- The medicinal plants possess strong antioxidant activity and may help to protect the cells against the oxidative damage caused by free-radicals and provide protection to human health against several diseases.

Objective

To collect the data of all medicinal plants used as food supplements according to the seasonal variations.

Materials and methods

- Type of study - A review related study
- Study period - From January to March 2018
- Study instruments

Data collection form was prepared according to the following details:

1. Total no of Medicinal plants used as food supplements according to the seasonal variations.
2. Morphological characters of the selected Medicinal plants.
3. Nature of the identified Medicinal plants.
4. Consumable part of the selected Medicinal plants.
5. Consumable food supplement variety of the selected Medicinal plants.
6. Selected Medicinal plants according to the Seasonal variations.

The data collected from

- Ancient literatures
- Peer review Journals
- Review articles of website focusing on diet pattern according to the seasonal variations
- Place of study - Libraries of Unit of Siddha Medicine and University of Jaffna

Permission obtained from administrative in charge of both libraries.

- Data analysis

Collected data were analyzed by using MS Excel-2010 according to simple Statistical method.

III. Results And Discussion

Totally 188 numbers of Medicinal plants were identified as food supplements from the review sources.

Classification of selected Medicinal plants according to the family

Family Name	No of plants	Percentage
Fabaceae	18	9.57%
Poaceae	16	8.51%
Amaranthaceae	14	7.45%
Rosaceae	11	5.85%
Rutaceae	10	5.32%
Cucurbitaceae	9	4.79%
Malvaceae	7	3.72%
Solanaceae	7	3.72%
Brassicaceae	7	3.72%

- The Fabaceae or Leguminosae commonly known as the legume, pea, or bean family. Legumes are the main protein source and has adequate amount of minerals and vitamins.
- Poaceae or Gramineae known as grasses includes the cereal or grains. Cereals are the main source of carbohydrates provide more than half of all calories consumed by humans.
- Amaranthaceae includes some species of spinaches. Spinaches are the main source of Iron consumed by humans. They contain other vitamins, minerals, protein and fibre.

Morphological characters of the selected Medicinal plants

Morphology	No of plants	Percentage
Herb	75	39.89%
Tree	37	19.68%
Shrub	19	10.11%
Climber	19	10.11%
Grass	18	9.57%
Thorn plant	12	5.09%
Aquatic plant	05	2.66%
Creeper	04	2.13%

According to the above table 40% of selected Medicinal plants are herbs, 20% are trees, 10% shrubs and climbers. Very less percentage are aquatic plants and creepers.

Nature of the identified Medicinal plants

Nature	No of the plants	Percentage
Natural habitat	125	66.49%
Cultivated	31	16.49%
Imported	32	17.02%

67% of selected Medicinal plants are naturally available in Sri Lanka. Their very nature, are the perfect food for human to survive. 17% of selected Medicinal plants are cultivated in Sri Lanka. 83% of plants are available in Sri Lanka. Only 17% are imported from various countries.

Consumable part of the selected Medicinal plants

Parts of the plant	Total number of the plant	Percentage
Fruit	74	39.36%
Leaves	65	34.57%
Seeds	42	22.34%
Ripe fruit	28	14.89%
Flowers	16	8.51%
Dry fruit	12	6.38%
Unripe fruit	11	5.85%
Tuberous root	9	4.79%

Out of 188 selected medicinal plants 39% of medicinal plants are fruits, 35% are leaves, 22% are seeds, 15% are flowers, 6% are dry fruits, 6% are unripe fruits and 5% are tuberous root.

Consumable food supplement variety of the selected Medicinal plants

Type of food	Number of plants	Percentage
Fruit	53	28.19%
Spinach	51	27.13%
Fresh juice	48	25.53%
Soup	47	25.00%
Drink / Juice	41	21.81%
Dessert	41	21.81%
Salad	40	21.28%
Beverage	35	18.62%
Snack	33	17.55%
Pickle	30	15.96%
Porridge	25	13.30%
Chutney	23	12.23%

- According to the above table fresh fruit, spinach, fresh juice, soup, drink, dessert and salad are highly used as food supplements.
- Fresh, raw fruits, vegetables and spinaches which along with vital vitamins, minerals and phyto-nutrients lead to a positive, natural state of physical and mental health and vibrancy.
- Odiyal, Vadakam, Biscuit, Fried rice and Paayasam are used in less percentage as food supplements.

Selected Medicinal plants according to the Seasonal variations

Season	Month	No of plants	Total no of plants
Winter	Dec	96	103
	Jan	98	
	Feb	95	
Spring	Mar	112	126
	Apr	106	
	May	110	
Summer	June	115	135
	July	117	
	Aug	114	
Autumn	Sep	106	122
	Oct	106	
	Nov	99	

IV. Conclusion

Diet plays a major role in our everyday activity. Diet acts as the source of vital nutrients to gain energy, builds the body and give immune to the body. Improper diet habits cause disturbances in equilibrium of the three humours (*Uyirhathukkal*) and physical constituents (*Udalthathukkal*) in turn causing several diseases like Diabetes, Hypertension, Obesity, Cancer and so on. A proper diet include a combination of 6 tastes that is best suited to the prevailing season. This concept of the Siddha medicine is termed as *pathya* and *apathya*, which is essentially a list of do's and dont's.

“*Unavaemarunthu; marunthaeunavu*”

This verse, meaning diet can act as medicine, explains the importance of diet. With global warming and variation in the advent of season everyone should know about seasonal variations and seasonal conducts. Medicinal plants have been provided by nature, and by their very nature, are the perfect food for human to survive. Artificial food which have been highly sugared, salted and processed haven't rich in health-giving nutrients and similarly harmful or be the cause of allergic reactions in certain individuals. To be healthy, wealthy and strong people ought to take natural foods as per the seasonal variations.

Limitations

Source Books

Could not procure all ancient Siddha and Traditional text books on above subject.

Verse Forms

Most of the authentic books were written in verse forms and it is difficult to identify the plant parts.

Pararasasekaram, is one of the most ancient Siddha text of Sri Lanka, this text denote some medicinal plants can be used as food supplement which were not identified the scientific names yet.

Suggestions

- Give public awareness about Seasonal variations and Seasonal conduct.
- Encourage local and natural food products and marketed within the country.
- It is a preliminary document for the food supplement. A human clinical study was carried out to assess the biophysical and biochemical changes occurring due to the seasonal variations. Even though there is no scientific proofs to the diet pattern mentioned according to the season promote healthy life. In future, it should be done.
- It takes less time to prepare natural food varieties like fresh fruit drink, soup, dessert, salad, snack, porridge, chutney. So it should be included in day to day activities.

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