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QUALITATIVE ANALYSIS AND ANTIOXIDANT POTENTIAL OF HERBAL CANCER MEDICINE

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Abstract

Cancer is a global health problem the signs and symptoms vary from one person to other. In the present situation the life style modification and climatic changes plays a key role of the disease. During ancient days the patients were treated with internal and external medicines to eliminate toxins from the body. Parangipattai is a formulated Chooranam to cure cancer. The present study showed the presence of phytoconstituents and antioxidant have the effect on cancer and acts as an internal medicine to cure cancer cells.

Key Words : Cancer, Phytochemical, Antioxidant, Traditional medicine, Kalanchi

Introduction

Cancer is an abnormal cells grow out of control and spread to other areas of the body and eventually disrupting the work of body.In the wake of resistance to chemotherapy and escalating toxic effects of synthetic drugs all possible avenues are being explored to develop new and novel anticancer drugs (Balachandran and Govindarajan, 2005). The Siddha system is one of the ancient medicines practiced among Tamil speaking community. The formulation was prepared from raw drugs which are obtained from herbs, mineral, metals and animal products. The traditional knowledge of medicine as dynamic expressions of perceiving and understanding the world proficient include a valuable contribution to science and technology (ThirunananaSundari, 2014). The formulation and treatment of Siddha medicine emphasized that medical treatment must be oriented not merely to disease but also in view of the patient and their living enviornment, sex, age, habits, mental frame, diet, and physical condition. The Phytochemicals with adequate antibacterial efficacy will be used for treatment of bacterial infections. There is a growing awareness in correlating the phytochemical constituents of a medicinal plant with its Pharmacological activity (Turger and usta, 2008).

Materials and Methods

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The parangipattai choornam is the formulated by using 1 to 5 kalanchi (1 kalanchi = 5 gram) of medicinal plant part of Thippli, Nellikkai, Kadukai, Elam, Athimathuram, Thandrikkai, Valmilagu, Parangipattai,Thaantri,Thalisapathiri,Lavengapattai, Paathiri were collected from the Western Ghats. The collected medicinal plant parts were sun dried for one week and then powdered by using mortar and pestle and then sieved by using a sieve and was stored it in a clean porcelain pot for further scientific assessment. Eleven medicinal plants were used in different combination of Kalanchi. The Phytochemical of flavanoid, Terpenoid, Phenol, alkaloid, Saponin, Tanin, Steroid, Reducing Sugar, amino acid, Glycosides were assessed by using different solvents of control, Aqueous, Ehanol, Chlroform, Methanol and acetone were analysed by using standard procedure (Harborne, 1973). Hydroxyl Radical scavenging activity was measured by the standard procedure of (Halliwel *et al*., 1987) and the DPPH radical scavenging activity was measured by the method of cotelle *et al*., 1996.

Result and Discussion

Table 1: Ingredients of Choornam

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Sl. No.	Botanical Name	Quantity
1.	*Piper longum*	1 Kalanchi
2.	*Emblica officinalis*	2 Kalanchi
3.	*Termminalia chebulla*	1Kalanchi
4.	*Elleteria caradamom*	1 Kalanchi
5	*Glycyrrhiza glabra*	2 Kalanchi
6	*Piper cubeba*	1 Kalanchi
7	*Smilax etineusis*	5 Kalanchi
8	*Terminalia bellirica*	1 Kalanchi
9	*Abies spectabilis*	1 Kalanchi
10	*Cinnamomum verum*	1 Kalanchi
11	*Strereospermum suaveolens*	1 Kalanchi

ParangipattaiChoornam is an internal cancer medicine. Eleven medicinal plants were used in different combination of kalanchi for the preparation of the choornam. The ingredients used for preparation of cancer medicine *Cardamom, Terminalia Belerica* (seed), *Piper cubeba, Terminalia Belerica,Abies Spectabilis, Cinnamomum verum*, *strereospermum suaveolens* (1 kalanchi), and *Emblica officinalis, Glycyrrhiza glabra* (2 kalanchi) then *smilax etineusis* (5 kalanchi**)** (Table - 1).

Table : 2 Qualitative analysis of Parangipattai Choornam of Solvent extracts

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Phytoconstituents	Solvent Extracts					
	Control	Aqueous	Ethanol	Chloroform	Methanol	Acetone
Flavanoid	+	+	+	+	+	+
Terpenoid	+	-	+	+	-	+
Phenol	+	+	+	-	-	-
Alkaloid	-	-	-	+	-	-
Saponin	+	-	+	+	+	-
Tanin	-	-	+	-	-	+
Steroid	+	+	-	-	-	-
Reducing Sugar	+	-	+	+	+	+
Amino acid	-	-	-	-	-	-
Glycosides	-	-	-	+	-	-

The Qualitative analysis of Parangipattai choornam reveals the presence of Flavanoid, in all solvent extract. Terpenoid is absent in aqueous and methanol. Phenol is present in control, aqueous and ethanol. alkaloid is present in chloroform saponin is absent in aqueous and acetone. Tannin was present in Ethanol and Acetone, steroid was present in control and aqueous. Reducing sugar is absent in aqueous extract, amino acid is absent in all solvent extract and the presence of Glycosides is only in chloroform extract (Table - 2).

The preliminary phytochemical screening test had reveals the presence of carbohydrates, glycoside, saponin, flavanoid, protein and aminoacid, diterpenes and quinine. (Lalithasivasankaran*et al*.,2018).

Table : 3 Hydroxyl radical - Scavenging activity

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Concerntration of extracts	Control	Aqueous Extract	Ethanol Extract	Choloroform Extract	Acetone Extract	Vitamin - C (Standard)
25µl	62.87± 0.001	16.44 ±0.000	21.02 ± 0.015	8.95 ± 0.011	16.24 ± 0.036	68.98 ± 0.000
50µl	67.64±0.000	18.59±0.015	23.83±0.001	9.24±0.010	18.13±0.042	75.19±0.025
75µl	75.91±0.010	24.38±0.047	25.36±0.022	11.68±0.032	19.48±0.036	79.56±0.011
100µl	83.83±0.005	27.16±0.000	27.00±0.005	13.42±0.000	22.72±0.000	85.98±0.000

Hydroxy radical scavenging activity shows minimum scavenging to maximum scavenging activity. The concentration of extracts were 25µl, 50µl, 75µl and 100µl in control minimum scavenging activity were 62.87 ± 0.00% (25µl) to the mamixmum ± 0.005% (100µl). The aqueous extract varation 16.44 ± 0.00% (25µl) to 27.16 ± 0.00% (100µl). The Ethanol extract varied from 21.02 ± 0.015% (25µl) to the maximum 27 ± 0.005% (100µl). The Choloroform extract varied from 8.95 ± 0.011% (25µl) to the maximum 13.42 ± 0.00% (100µl). The acetone extract varied from 16.24 ± 0.036% (25µl) to the maximum 22.72 ± 0.00% (100µl). The standard vitamin C extract varied from 68.98 ± 0.00% (25µl) to the maximum 85.98 ± 0.00% (100µl) (Table - 3).

In general the Vitamin C (standard shows the maximum activity 85.98 ± 0.00% (100µl) and minimum activity in chloroform extract 8.95 ± 0.011% (25µl) of hydroxy radical scavenging activity.

Table: 4 DPPH radical scavenging activity

Concerntration of extracts	Control	Aqueous Extract	Ethanol Extract	Choloroform Extract	Acetone Extract	Vitamin - C (Standard)
25µl	71.35±0.010	11.55±0.010	35.81±0.16	27.33±0.010	19.29±0.011	75.24±0.000
50µl	78.14±0.021	14.06±0.024	37.16±0.000	29.24±0.000	23.27±0.000	79.16±0.010
75µl	86.21±0.024	17.14±0.000	39.88±0.000	34.16±0.021	27.73±0.000	87.12±0.011
100µl	94.93±0.000	19.23±0.000	45.39±0.010	37.20±0.000	33.15±0.024	97.83±0.010

In DPPH radical scavenging activity of parangipattai choornam the minimum scavenging activity 71.35 ± 0.010% (25µl) to 94.93 ± 0.000% (100µl); In aqueous extract

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minimum scavenging of 11.55 ± 0.010% (25µl) to 19.23 ± 0.00% (100µl) Ethonol extract showed minimum scavenging of 35.81 ± 0.016% (25µl) to 45.39 ± 0.010 % (100µl) choloroform extract showed minimum scavenging of 27.33 ± 0.010% (25µl) to 37.20 ± 0.00% (100µl) and acetone extract showed minimum scavenging of 19.29 ± 0.011% (25µl) to 33.15 ± 0.024% (100µl). The vitamin C (standard extract varied from 75.24 ± 0.00% (25µl) to the maximum 97.83 ± 0.010% (100µl) (Table - 4).

In general the aqueous extract shows minimum DPPH radical scavenging activity and Vitamin C shows maximum radical scavenging activity.

Table 5: Effect of HeLa with parangipattai choornam

Percentage of cell viability values and observed IC50 value of given sample Parangipattaichoornam against HeLa cells after the treatment period of 24hrs.

MTT assay-Parangipattai choornam with HeLa		
Culture condition	**% cell viability**	**IC50 conc.(µg/ml.)**
Untreated	100	55.99
Std.control	49.15	
6.25µg	90.75	
25µg	72.49	
50ug	51.49	
100ug	17.91	

The Parangipattai choornam was treated against HeLa cells with an increasing concentration of medicine (6.25µg,12.5µg, 25µg,50µg,100µg) and cell viability assessed after 24 hours treatment.There is decrease in cell viability percentage when increased the amount of medicine.The percentage of cell viability decreased while increasing the quantity of medicine.There is decrease in cell viability with increase in concentration after the incubation period of 24 hours.The IC50 value of HeLa of Parangipattai choornam after incubation period of 24 hours is 55.99µg/ml (Table-5).

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During the early stages and late stages of the disease traditional practitioners prescribed herbal medicines. Parangipattai Choornam is the internal medicine prescribed for the patients during the early symptoms of disease. The polyherbal formulation of the medicine help the patient to remove the toxins from the body and it also provide immunity to fight against the inflammation. Parangipattaichoornam is formulated by using Nellikai, Kadukkai, Elam. Athimathuram, Parangipattai, Thippili, Thandrikkai and vaalmilagu (Kalanchi = 5ml). The primary metabolites such as carbohydrates, amino acids and fatty acids are directly useful for plants themselves. These are the metabolic intermediates of anabolic and catabolic pathways, which occur in plants, have the same metabolic functions. Plants also contain large variety of substances named secondary metabolites with no apparant direct metabolic functions. The plant chemicals protect cells from environmental hazards such as pollution, stress, drought, UV. exposure and pathogenic attack are called as phytochemicals (Gibson *et al*., 1998 and Mathai, 2000) The oxidative stress might be an important part of many human diseases the use of antioxidant in pharmacology is intensively studied particularly as treatment for stroke and neurogenerative diseases (Bjelakovic *et al*., 2007)

Conclusion

The present study showed the presence of phytoconstituents and antioxidant potential

of the prescribed medicine by the Traditional Practitioners plays a major role during the

Initial stages of tumour symptoms.

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