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Quality Standardization of *Coccinia indica* Fruit

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Coccinia indica fruit were collected from the market of Ghaziabad, India and identified and standardized as per WHO guidelines.

Key Words: *Coccinia indica* fruit, WHO standard quality control.

INTRODUCTION

Several pharmacopoeias including Indian pharmacopoeia, British pharmacopoeia, Japanese pharmacopoeia and United State pharmacopoeia do cover monograph and quality control tests for few of the medicinal plants in the respective countries, but basically these pharmacopoeia are designed to cater the chemical base medicines and pharmaceutical necessities by giving their standards test methods[1].

The quality of a vegetable product depends on the geographical origin, time and stage of growth when collections have been done and post harvest handling. The raw material presently available to the industry is procured from more than one geographical region. The plant is usually collected without paying attention to the stage of maturity, dried haphazardly and stored for long period under unsuitable conditions.

EXPERIMENTAL

The *Coccinia indica* fruit was collected from the market of Ghaziabad, India and identified as raw material. It was deposited at National Institute of Science communication and Information Resources and assigned voucher specimen/Ref. NISCAIR/RHMD/CONSULT/2008-09/995/26/.

Organoleptic properties of *Calotropis procera* leaves: Organoleptic properties of *Coccinia indica* fruit were done by reported method[2,3] (Table-1).

TABLE-1
EXTRACTIVE VALUES OF *Coccinia indica* FRUIT

Extractive	Values* % w/w (Mean ±SD)
Petroleum ether	3.523
Benzene	1.435
Chloroform	2.617
Ethyl acetate	0.982
Methanol	82.129

*Values of mean of three experiments.

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Extractive values: *Coccinia indica* fruit 20 g from each batch for individual extraction was extracted with petroleum ether, benzene, chloroform, ethylacetate, methanol and distilled water separately by cold maceration method described and their extractive values were determined as per the method given in Indian Pharmacopoeia[4] and WHO[5] publication.

Petroleum ether, benzene, chloroform, ethyl acetate and methanol: About 20 g of powdered drug of *Coccinia indica* fruit extracted with petroleum ether, benzene, chloroform, ethyl acetate and methanol using cold maceration for 48 h and hot extraction for 72 h. The solvent was completely removed from the marc in each case before the next extraction was carried out. The solvent was recovered from their extract by distillation under reduced pressure the dried extract thus obtained was used for identification for their extractive values.

Water soluble extractives: About 3 g *Coccinia indica* fruit powder was dispersed in 100 mL of water and allowed to stand for 24 h with occasional shaking and filtered. The above procedure was performed for *Coccinia indica* fruit and dried water extractive of *Coccinia indica* fruit were weighed. The extractive values of the *Coccinia indica* fruit in above solvent are given in Table-2.

TABLE-2
WATER EXTRACTIVE VALUES OF *Coccinia indica* FRUIT

Extractive	Values* % w/w (Mean ±SD)
Water	6.41

*Values of mean of three experiments.

Ash values: Total ash, acid insoluble ash and water soluble ash values were determined using standard procedure[4,6] in Table-3.

TABLE-3
ASH VALUES OF *Coccinia indica* FRUIT

Samples	Ash values* % (Mean ±SD)
Total ash	6.141
Water soluble ash	3.421
Acid insoluble ash	1.843

*Values of mean of three experiments.

Foreign matter: Foreign matter of *Coccinia indica* fruit were determined as per standard procedure[6-8] in Table-4.

TABLE-4
FOREIGN MATTER OF *Calotropis procera* LEAVES

Samples	Values* % (Mean ±SD)
Foreign matter %	1.09

*Values of mean of three experiments.

Phytochemical evaluation: For this study, aqueous extract of *Coccinia indica* fruit has been employed, screening process of *Coccinia indica* fruit for phytochemical evaluation was done using reported method[8] (Table-5).

TABLE-5
PHYTOCHEMICAL EVALUATION OF *Coccinia indica* FRUIT

Test	Petroleum ether extract	Benzene extract	Chloroform extract	Ethyl acetate extract	Methanol extract	Aqueous extract
Alkaloids	-	+	++	-	+	-
Glycosides	-	-	-	-	-	-
Fixed oil and fats	-	-	-	-	-	-
Tannins	-	-	-	-	-	-
Saponins	-	-	-	+	++	-
Proteins	-	-	-	-	-	-
Phenol	-	-	+	++	++	-
Acids	-	-	-	-	-	-
Flavonoids	-	+	++	-	++	+
Charbohydrates	-	-	-	-	-	+

- Negative, + Slightly positive, ++ Strong positive.

Fluorescence analysis: For this study the drug powder was treated with different solvent in different test tubes. The solvents used were conc. H_2SO_4, conc. H_2SO_4 + water, conc. HCl, conc. HCl + water, conc. HNO_3, conc. HNO_3 + water, acetic acid, methanol, ethanol, chloroform, petroleum ether, distilled water, 10 % NaOH, 5 % iodine, picric acid, $FeCl_3$ solution and NH_3 solution. Then they were subjected to fluorescence in ordinary light and UV light as per I.P.[4] (Table-6).

TABLE-6
POWDER FLUORESCENCE ANALYSIS OF *Coccinia indica* FRUIT

Treatment of the dry powder	Observation under		
	Ordinary light	UV (254 nm)	UV (366 nm)
Dry powder as such	Greyish Green	No Change	No Change
Conc. H_2SO_4	Blood Red	No Change	No Change
Conc. H_2SO_4 + water	Yellowish Green	Green	Green
Conc. HCl	Dark green	No Change	No Change
Conc. HCl + water	No Change	Yellowish Green	Green
Conc. HNO_3	Light Yellow	Green	Dark Green
Conc. HNO_3 + water	Orange	Light Yellow	Dark Green
Acetic acid	Light Green	No Change	Pinkish Red
Methanol	Brilliant Green	No Change	Red
Ethanol	Light Green	No Change	Red
Chloroform	Light Green	Yellow	Pink
Petroleum ether	Light Green	Dark Yellow	Bulf
Distilled water	Light Yellow	Light Yellow	Light Green
10 % NaOH	Blackish Brown	No Change	No Change
5 % Iodine	Cherry	Brick red	No Change
Picric acid	Yellowish Green	No Change	Green
$FeCl_3$ Solution	Blackish Brown	No Change	No Change
NH_3 Solution	Dark Brown	Black	Greenish Black

RESULTS AND DISCUSSION

Coccinia indica fruit were evaluated in the laboratory by comparative analysis for their organoleptic properties, extractive values (petroleum ether, benzene, chloroform, ethyl acetate, methanol and water), ash values (total ash, water soluble ash and acid insoluble ash), foreign matter, phytochemical evaluation and fluorescence analysis.

Coccinia indica fruit ether, benzene, chloroform, ethyl acetate were found to be 23.523, 1.435, 2.617, 0.982, respectively and that in methanol and water were 82.129, 6.41, respectively, indicating the presence of polar and semi polar constituents in *Coccinia indica* fruit. The ash values for *Coccinia indica* fruit or total ash, water soluble ash and acid insoluble are found to be 6.141, 3.421 and 1.843, respectively which indicate the presence of inorganic matters as major components.

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