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REVIEW: ON CUCUMIS CALLOCUS

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ABSTRACT

Cucumiscallosus (Rottl.) Cogn (Cucurbitaceae) is very common throughout the India and commonly known as "Kothimbda" In Gujarat. Kothimbda is rich source of vitamin C (19.99 mg/100 g) to human beings Powdered seed of Cucumiscallosus (Rottl.) Cogn. (Cucurbitaceae) were subjected to successive soxhlet extraction with petroleum ether 60-80, benzene, chloroform, alcohol and water to get their respective extracts for detailed chemical analysis. These studies provide referential information for correct identification and standardization of this plant material Kachri [(Cucumiscallosus (Rottler) Cogn.)] is commonly known as bitter cucumber in English, kachri in Hindi, and karkati in Sanskrit and belongs to the family Cucurbitaceae. Kachri, a feral species of India, has attracted the attention of muskmelon breeders as this species is reported to possess genes for resistance to fruit y and leaf-eating caterpillars, as well as genes for drought and eld resistance to a host of pests and diseases. This chapter presents an overview of kachri (C. callosus (Rottler) Cogn.) with respect to its potential uses, botany, taxonomy, distribution, and production technology for its successful cultivation.

KEYWORDS: Cucumis callosus, seed, solvent extracts, physicochemical and phytochemical.

INTRODUCTION

Cucumiscallosus (Rottl.) Cogn (Cucurbitaceae) is truly common Throughout the India and generally known as "Kothimbda" in Gujarat. The mature fruits of Cucumiscallosus(rottl.) Cogn(Kothimbda), a Drought tolerant cucurbitaceous vegetable set up growing abundantly During stormy season in the thirsty and semiarid regions of North- Western India,

particularly in Gujarat and Rajasthan, are generally cooked with various vegetable specifics. It's an ideal summer vegetable crop primarily grown for its eatable tender fruits, preferred as salad element, Pickles, Desert fruit and as a cooked vegetable. The ripe fruits are eaten As analogous, while callow fruits used as vegetable. Fruits are known to Contain vitamin C.[1] Kothimbda cream attained after drying the fruits is used as Souring agent in combination with other spices to make spice premix And mouth fresheners. Greasepaint of Kothimbda with other spices is Generally used for various remedial purposes to cure stomach Pain, nausea, puking and constipation. The dehydrated Kothimbda Is coughicide, vermicide, cooling, diuretic and gastric stimulant. Amongst all nutrients Ascorbic acid(Vitamin C) is most important From the processing point of view.[2]

Time that will affect in optimum retention of The nutritive parameters as well as icing storehouse stability. Cucumiscallosus The factory is veritably common through out the area on beach. The ripe fruits are eaten as similar while callow Fruits are used as vegetables. Available during shortage and in normal days also. Fruits are Known to contain vitamin C. Generally, fruits and vegetables are heat sensitive and thus Present a special problem when drying. Dehumidification has to be Carried out under precisely controlled conditions. Sun drying is being Decreasingly espoused in vegetable preservation due to high cost skill needed in the artificial drying system. Though, conservation of Nutrients is veritably important in view of the current micronutrient Deficiency problems. The action of applying heat to a material in order To dry it doesn't simply remove the humidity but can also affect The nutritive rates of the dried product.[3]

The rate of drying Depends upon the rate of moisture and size or consistence of the pieces. The range of drying is determined by a range of factors similar as external Air, temperature, the size of the food pieces been dried and the depth to Which the drying charger is packed. Since these factors vary, it's insolvable To give an exact drying time for any particular food item. Considering All over aspects in mind a study was accepted to quantify the losses In those quality parameters during drying and establish applicable Drying temperature.

Figure 1: Cucumiscallosus.

Morphological characteristics of cucumiscallosus

Fruit

Fruit is traditionally used to prevent insanity to strong memory and remove vertigo. The seeds Are cooling and astringent and useful in bilious disorder.[4,5] Seeds are powderd and given in twice a day traditionally in diabetics in Sri lanka, expert cooling effect, improve appetite, easy bowl syndrome, relives stomach pain, vomiting and constipation.[6,7] Paste of root is applied on scorpion sting, decoction of root is given in indigestion, dropsy, and pulp of fruit used abortion and to increase menses for women[8] Fruit type (general)The fruit is fleshy.[9]

Climbing Mechanism

Melons use their tendrils to climb over structures or other vegetation Cucurbitaceae. Perennial climbers; stems1.0-1.5m, slender, angular, rough with short, rigid hairs.[11]

Figure 2: Climbing Mechanism.

Flowers

Are small, yellow, solitary or rarely in pairs or Threes. Male flowers in a fascicle; peduncles 5-10 mm long. Calyx be campanulas, 2-3 mm long, teeth subulate, Corolla yellow, 2-7mm

long, lobes ovate-oblong, acute. Anthers 1.5mm long; an appendage of the connective Shorter than the anthers; pistillode 1 mm long. Female Flowers are solitary, peduncles 2-3 cmlong, densely Hairy15.[10]

Figure 3: Flower of C.callosus.

Root

The roo textract is Used for Diabetes and in the treatment of chronic Constipation. In India, the root is used in the treatment of Abdominal pain.[12]

Figure 4: Root of C. callosus.

Leaves

Figure 5: Leaves of C. callosus.

Leaves suborbicular, 36cm across, scabrous, 57 shallowly Lobed, margin dentate or lobulate, hispid; petioles 2-5 cm Long slender, hispid. Leaves alternative suborbicular, base cordate, lobes round or ovate-oblong, often narrowed at the base, apex round, dentate or lobulated.[13]

Uses

India(Western Rajasthan) ripe frui teaten raw and used in curries; green fruit usedasvegetable; dried fruit rind and seeds used in curries. Kachri fruits are used for drug of pickles, vegetables, salad and chutney. The dehydrated kachri is also used in vegetables, chutney etc. Kachri cream is vastly used in combination with chilli, turmeric, coriander, cumin, methi and other spices to produce curry cream and ready to use spices.[14]

Native distribution area

Continental: Asie Anatolia, Iran, Nepal, Pakistan (Karachi, Sind, Baluchistan, N.W.Frontier Prov., Drosh, Swat, Pakistani Punjab), Jammu & Kashmir(Kashmir), India, Malaysia, Nicobars(CentralNicobars), Myanmar[Burma] (Mandalay, Yangon), Vietnam, LakshadweepIsl. Bangladesh.[15]

Cucumiscallosus[16]

Kingdam : plantae

Phylum ; tracheophyta

Class : magnoliopsida

Order : cucurbitales

Family : cucurbitaceae

Genus ; cucumis

Espesye : cucumis callosus

Scope of cucumis callosus

Cucumis callosus(Rottl.) Cogn.(Cucurbitaceae) is a largely Fanned veritably common prostate, imperishable condiment, distributed throughout India In the thirsty zones therefore, waterless excerpt of Cucumis callosus seeds retain potent antioxidant exertion in hydrogen peroxide model and may be useful for medication of nutraceuticals' As potent antioxidant to treat colorful mortal conditions. In living systems, free revolutionaries are generated as part of the body's normal metabolic process and the free revolutionary Chain responses are generally produced in the mitochondrial respiratory chain, liver mixed function oxidases, through Xanthine oxidase exertion, atmospheric adulterants and from transitional essence

catalysts, medicines and xenobiotics. In Addition, chemical rallying of fat stores under colorful conditions similar as lactation, exercise, fever, infection and Indeed fasting, can affect in increased radical exertion and damag The excerpt was able of scavenging hydrogen peroxide in a attention-dependent manner. The radical Scavenging exertion of Cucumis callosus excerpt increased with adding in attention.[26]

METHODS

Comparativestudy

Morphological key to distinguish C. Callosus From other subcategories of C. Melo Based on comparative study of morphology a key is Presented for easy identification of the taxa. Leaves deeply 5–7 lobed, male flowers solitary, Roots tuberous, perennials—C. Callosus Leaves unlobed (ormoderatelylobed), male flower sinfascicles, roots non-tuberous, annuals Stem slender, flowers with diameter below 4cm, Pedicel slender, fruits very small below 50g, Often bitter, seeds below 5 mm in length, weedy And feral C. melo subsp. Agrestis Stem robust, flowers with diameter rabove 4cm, Pedicel robust, fruits large and above 50g, of tennon bitter, seeds more than 6mm in length, Cultivated C.melo subsp. Melo.[23]

Figure 6: Cucumismelo.

Figure 7: Cucumiscallosus.

Extractionofplant seeds

The powder of seeds was subjected to hot continuous extraction in a soxhlet extractor, Successively with different known solvents in increasing order of polarity viz petroleum ether (60-800 C), benzene, chloroform, alcohol. Finally, the powdered material was macerated with Water for 24 hrs to obtain aqueous extract. Each time before extracting with next solvent, the Powdered material was dried in hot air oven below 500C. Each extract was then concentrated by Distilling off the solvent by evaporation to a water both 8,9,10,14 and stored in refrigerator.[24] These results indicated that alcoholic extract Of Cucumis callosus seeds

produced antioxidant activity. These finding suggest that this plant is a potential source of natural antioxidant.

Preliminary phytochemicals screening

Extracts obtained from successive solvent extraction were then subjected to various qualitative chemical tests to determine the presence of various phytoconstituents like alkaloids, carbohydrates, proteins/ aminoacids, glycosides, fixedoils & fats, phenolics, tannins, phytosterols, flavonoids, Saponins. Preliminary phytochemical webbing substantially revealed the presence of alkaloids, Proteins, carbohydrates, flavonoids, glycosides, saponins and tannins in alcohol and water Excerpts. The results pertaining to this disquisition were presented.[29] Thine layer chromatography Silica gel carpeted plates(Merck, Germany) were used for the TLC Analysis. The excerpts of epicarp, mesocarp, seeds and standard Cc Were spotted on TLC plate. Toluene ethyl acetate was use dasmo- Bile phase for the development in chromatography chamber for about 20 min. Vanillin phosphoric acid reagent was scattered on air dried TLC Plate and also hotted.

Forfew twinkles at 110 °C. TLC plates were visual- Ized under visible light and emulsion in the samples was detected by Comparing the Rf value of standard.[26] There were distinctive TLC biographies of the seed and pericarp Excerpts. One phenolic antioxidant and five terpenoid composites Were characteristic to the pericarp excerpt whereas two phenolic And one terpenoid antioxidant were characteristic to the seeds Extract. The study suitable to give a companion in segregating the Antidiabetic emulsion. Chromatogram scattered with Vanillin/ H2SO4 and viewed under the UV254 light showed Terpenoidal composites as pink or blue bands. Chromatogram scattered with FeCl3 showed phenolic composites as dark blue bands.

Measurement of carotinoids dimension of Carotenoids The total carotenoid content was measured using a spectroscopic method originally, we conducted birth using methanol (100), ether (100), and acetone (100 and 80v/ vin water). Grounded on the reproducibility and thickness of theresults, 80 acetone wasused for all samples. Briefly, fresh pulp and whole fruit samples were weighed and transferred to amortar. Then, 2 – 3 mL of 80 acetone(v/ vin water) was added, and the sample was crushed into a smooth paste. Depending on the sample size, a many mL of80 acetone was added alongwith 2 small spatulas of washed beach and farther crushed to getcomplete birth of the colors. This was transferred into a 15 mL tube and centrifuged at 5000 rpm for 5 min at 4◦C. Spectroscopic analysis was conducted directly on the supernatantor after 11 dilution depending on the OD value (when the value was further

than 0.9, samples were adulterated). Optic viscosity was recorded at 470, 643, and 666 nm, and the quantum of carotenoids was calculated as per the authors' formula.[27]

Study on Effect of Slice Consistence and Temperature Kinetics of Kothimbda (CucumisCallosus) For this trial mature, the sound and slightly progressed fruits without any damage were named for the trial And washed in valve water. The washed and shade dried Kothimbda Fruits were sliced into 3 mm, 5 mm and 7 mm consistence by using Stainless sword cutter. To help bacterial and earth infection, knifes Were constantly dipped into potassium permanganate result (5) For 2 twinkles before reusing for slicing. The slices of Kothimbda Slices Were slightly spread in single subcaste in charger for dehumidification.[28] It was observed that, one of the main factors impacting the drying Kinetics of the product during the falling rate drying period is the Drying air temperature. The results showed that the increase in drying Air temperature redounded in a drop in the drying time. It Also showed that drying time increased with adding consistence Of Kothimbda slices. The drying rate reached its outside values at Advanced drying air temperatures. It's dropped continuously with dwindling humidity content or perfecting drying time. The humidity junking inside the Kothimbda slices were advanced at advanced drying air Temperatures, because the migration of humidity to the face and the Evaporation rate from face to air slows down with dwindling the humidity in the product, the drying rate easily drop.[33] The qualitative chemical analysis of excerpts were set up positive foralkaloids, proteins, carbohydrates, flavonoids, glycosides, saponins and tannins in alcohol and aqueous solvent extracts. These studies provide referential information for correct identification and standardization of this plant material.[30]

Total Ash Value

The total ash is particularly important in the evaluation of purity of drugs, i.e. the presence or absence of foreign organic matter such as metallic salts and/or silica. The total ash value of plant material indicated the amount of minerals and earthy materials attached to the plant material.[25]

The ash content per solid content of the sample decreased after solar drying due to the leaching of soluble inorganic compounds in the rehydration water.[32]

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mater.

Benefits of cucumis callosus

It has a triple benefit of being a coolant, tonic & stimulant. Regular use of kachri Powder may help to cure minor skin diseases like boils, bed sores, lice, manifestation, prickly heat, itching, earache, etc.[35]

Health benefit Kachri has beneficial properties in the treatment of skin like itching, prickly heat, boils, bed sores. It also help store lieve earaches.[36] Cucumis callosus, the wild melon have antioxidant and boost immunity. Seeds impart excellent protein content to this melon along with potent antioxidant sand immunity boosting properties. Food ash is an inorganic residue that remains after burning organic matter. Total ash estimation is an index of food refinement and a valuable parameter for assessing the nutritional value of foods. The ash content of samples was determine during the following equation.[37]

CONCLUSION

There are large number of Phytoconstituents have been discovered. However, very few pharmacological studies have Been carried out to prove its beneficial effects scientifically. Hence, this review will serve as Base for further studies to validate the claims mentioned in the Ethnobotanical literatures. The observed inhibitions Of some microbial species suggested that the Cucumis Callosus may be useful in the management of diabetes mellitus and treatment of some infectious diseases. Present Investigation is quite encouraging and it explores The potent antidiabetic activity of CC probably Because of its secondary metabolite which is Further potentiated by its antioxidant properties. Those plants have incredible recognition now and hold surprising promise for the future. In view of the low toxicity of plant that included many parts and their employ as a nutraceutical as well as a clinical studies also, reliable medicine need to be carried out only to cement cucumis and their spp. As a significant constituent of our biodiversity, in view of the fact that there are no any side effects have been reported till now callosus may be look upon as a distinctive affordable, tasty, and safe fruit medicine. In the present physicochemical investigation and preliminary phytochemical screening Of powdered seed of Cucumis callosus (Rottl.) Cogn. Provide valuable information regarding Their identification, authenticating and chemical constituents which may be useful for the Standardization and preparation of monograph. The constituents of Cucumis callosus (Rottl.) Cogn. May have several medicinal properties and can be utilized for the treatment of various Diseases. Further research on this species may help in the

isolation of therapeutically potent Compounds which can be finally be subjected to pharmacological activities, thus leading to Opening up new avenues in the use of natural products for therapeutic purpose.

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