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## Study of Cucurbits Which is Cultivated by Tribals in Dhadgaon Tahsil in Nandurbar District Maharashtra

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### Abstract

The present paper reports 20 species under 09 genera of Cucurbitaceae from Dhadgaon (Akrani) in Nandurbar district of Maharashtra. The majority is annual or perennial weak stemmed trailing or decumbent climber. The Cucurbitaceae also called Cucurbits or the gourd family. The Cucurbitaceae family possesses economically important species including Cucumber, Melon, Watermelon, Squash and Pumpkin. The genus Cucumis represented by five species and the genus Coccinia, Corallocarpus, Ctenolepis, Diplocyclos, Kedrostis, Lagenaria, Mukia and Solena having single species. The family is closely related to Campanulaceae. Both the families have some close characters of androecium. The fruits are usually large in size, fleshy berry called pepo.

KEY WORDS:- Common Vegetable, Biodiversity, Cucurbits, Dhadgaon.

### Introduction

Cucurbits are the popular name of the family cucurbitaceae, commonly known as the gourd family. They are widely distributed in the tropics and warm temperate regions of south, southeast and East Asia, Africa including Madagascar, central and south America. The family is represented by about 95 genera and 965 species. Cucurbits are mostly climbers and trailers, are rarely woody and arborescent. Cucurbitaceae family members have great diversity and considered to be major caterers of common vegetables. They are valuable sources of vitamins and minerals. River bed cultivation of a number of cucurbits is economical. Cucurbits are popular because they are easy to grow. They do not require high inputs. They can be grown on even soils of marginal fertility. The plants in this family are grown around the tropics and in temperate areas, where those with edible fruits were among the earliest cultivated plants both in the Old and New Worlds.

Many species have large, yellow or white flowers. The stems are hairy and pentangular. Tendrils are present at 90° to the leaf petioles at nodes. Leaves are estipulate alternate simple palmate lobed or palmately compound. The flowers are unisexual, inferior ovary and parietal placentation with male and female flowers on different plants (dioecious) or on the same plant (monoecious). The female flowers have The fruit is often a kind of modified berry called a Pepo.

The cultivated species investigated in this study belong to the genera *Benincasa*, *Citrullus*, *Cucumis*, *Cucurbita*, *Lagenaria*, *Luffa*, *Momordica* and *Trichosanthes*. These are used as fruits and vegetables, and most of them have considerable economic value. Many species of this family are the sources of medicine. Some are widely cultivated in the field for vegetable and food. (Basu s.c.,2000) and (Deore C.R/ and V.J.Somani,2005 ). Cucurbitaceae is the largest group of summer vegetable crops. These include cucumber, musk melon, water melon, tinda, bottle gourd, luffa, and bitter gourd, pumpkin, squashes, parwal and snake gourd.

## MATERIALS AND METHODS:

The area under cultivation of Cucurbits of various places in Dhadgaon Tahsil of Nandurbar districts. The field work carried out in different seasons during (2018-2019). Herbarium specimens or sample were collected and are deposited in the Department of Botany Jijamata Arts, Science and Commerce college Nandurbar. The data pertaining to botanical name, habit, flowering and fruiting period and occurrence were particularly noted during the study. Plants were identified by using, flora., (Patil D.A.2003) , (Cooke.T,1958).

## RESULTS AND DISCUSSION

Table 1:- Represent the collection of Cucurbits. A total of 20 varieties of Cucurbits were collected during the survey.

Morphology					
No.	Species Name	Habit	Leaf	Flower	Fruit
1	<i>Benincasa hispida</i>	Hispid Climber	Simple, Leaf stalks are long and hairy. Leaves roundish. Margin sinuate or toothed. Tendrils are slender	Yellow in colour, Bisexual Flowers axillary, solitary Corolla yellow; petals 5, 3-5 cm long obovate.	Fruits large, succulent, densely hairy when young, with a thick waxy deposit when mature. Seeds 8-12 x 5-7 mm, compressed, yellowish white, marginate.
2	<i>Citrullus colocynthis</i>	Creepers Perennial	Simple, the leaves are palmate and angular with three to seven divided lobes Leaf blade medium, shape Pentalobate	Yellow in colour and solitary in the axes of leaves and are borne by yellow-greenish peduncles. Flower are monoecious. The male flowers' calyx is shorter than the corolla and The female flowers have three staminoids and a three-carpel ovary	The fruit is smooth, spheric with a 5- to 10-cm-diameter and extremely bitter taste. Each plant produces 15 to 30 fruits.
3	<i>Coccinia grandis</i>	Scandent or Prostrate Vines	The leaves are classified as palmately simple with five lobes while the shape varies from the heart to pentagon form. The size of the leaves is approximately 5-10 cm in width and length.	The flower is large and white about 4 cm in diameter and contains five long tubular petals.	The ivy gourd fruit belongs to the berry type: oval and hairless with thick and sticky skin. The raw fruit is green in color and turns bright red when it is ripe. The mature fruit is usually from 25 to 60 mm long by 15-35 mm in diameter and contains several pale, flattened seeds.
4	<i>Cucumis callosus</i>	Prostrate or Trailing herb	Simple, alternate phyllotaxy, apex Acuminate, base Cordate, and Tendril Branched	Flower medium, unisexual, Yellow in colour and Inflorescence Solitary Axillary	Fruit Simple pepo, Shape Oval-roundish, colour green, fruit size 16-22 cm
5	<i>Cucumis prophetarum</i>	Hispid climber	The pubescent leaves are alternately arranged on long petioles, simple, basally cordate the plant bears unbranched axillary tendrils	sativus is monoecious and its axillary flowers are actinomorphic and rarely bisexual. Staminate flowers open before pistillate flowers .	The fruit is an indehiscent cylindrical with many seeds. Cucumbers are glabrous, and can be smooth, green.

6	<i>Cucumis sativa</i>	Climbe	The pubescent leaves are alternately arranged on long petioles, simple, basally cordate the plant bears unbranched axillary tendrils .	sativus is monoecious and its axillary flowers are actinomorphic and rarely bisexual. Staminate flowers open before pistillate flowers .	The fruit is an indehiscent cylindrical berry with many seeds. Cucumbers are glabrous, and can be smooth or warty, yellow or green, plant produces up to 25 fruits
7	<i>Cucurbita Maxima</i>	Climbing or Trailing herb	The thin leaves are alternate, simple, palmately veined, round to reniform, basally cordate. The petioles are densely pubescent, 5-20 cm long and estipulate, The plant bears tendrils at 90 degrees to the leaf axil; these are lightly pubescent, coiled, and 2-5-branched.	Flower is Yellow in colour, flower monoecious. bearing solitary actinomorphic flowers. The flowers produce nectar and are aromatic	Variable in shape, colour and size. Shape can be elongated cylinder, oval, globular, Heart shape.
8	<i>Cucurbita moschata</i>	Climbing or prostrate herb	Simple, alternate phyllotaxy, Apex alternate, base Cordate, Tendril Branch,	Yellow in colour, Inflorescence Solitary Axillary	Fruit Simple Pepo, Rounded and elongated Green in colour Size 12-16 cm
9	<i>Cucurbita Pepo</i>	Climbing or prostrate herb	. The thin leaves are simple, alternate, broadly ovate to deltoid, basally cordate, apically acute, palmately .The petioles are setose, grooved, 6-24 cm long, and estipulate. The plant bears tendrils borne at 90 degrees to the leaf insertion,	The flowers are monoecious, The plant is self-fertile. solitary actinomorphic flowers. Both male and female flowers produce nectar to attract wild bees, including the squash bee and other.	technically berries, and are highly variable in shape, color, and size. The shape can be oval, cylindrical, flattened, globular, scalloped, fusiform, and/or tapering to a curved or straight neck on one or both ends. The skin can be smooth, warty, wrinkled.
10	<i>Diplocyclos palmatus</i>	Tuberous Vines	Leaves Simple palmately 5-lobed, orbicular-cordate, basally 5-7-ribbed; scabrid above; lobes elliptic-oblong, acuminate. Petiole. tendrils 2-fid.	Flowers monoecious; male and female flowers in axillary clusters; calyx campanulate, lobes 5, to 1 mm long, linear; corolla greenish-yellow, to 5 mm, ovate-acute; stamens 3, free, inserted at the middle of calyx-tube, anther cells slightly flexuous; staminodes 3; ovary globose; ovules few; horizontal; stigma 3-fid, papillose. Fruit 1-1.5 cm across, globose, with vertical greenish and white patches.	Small in size, spherical in shape, green and red in colour. Smooth and glabrous
11	<i>Kedrostis rostrata</i>	Scandent or Trailing herb	Palmetly veined, round to reniform, basally cordate. The petioles are densely pubescent Simple, alternate	Light yellow in colour, Monoecious flower. Long, Female flowers solitary, , sometimes axillary with ovary beaked, 7-9 mm.	The fruit is an indehiscent cylindrical berry with many seeds
12	<i>Lagenaria siceraria</i>	Large Climber	Leaves simple, up to 400 mm long and 400 mm broad, shortly and softly hairy, broadly egg-, kidney- or heart-shaped in outline, undivided, angular or faintly 3-7-lobed, lobes rounded, margins shallowly	Flowers stalked (female flower stalks shorter than male), solitary, monoecious (male and female flowers on the same plant); petals 5, crisped, cream or white with darker veins, pale yellow at the base, obovate, up to 45 mm long, opening in the	Fruit large, variable, up to 800 x 200 mm, subglobose to cylindrical, flask-shaped or globose with a constriction above the middle; fleshy, densely hairy to ultimately glabrous, indehiscent, green, maturing yellowish or pale brown, pulp drying out

			toothed, crushed leaves non-aromatic. Leaf stalks up to 300 mm long, thick, often hollow, densely hairy, with two small, lateral glands inserted at the leaf base. Tendrils split in two.	evenings, soon wilting.	completely on ripening,
13	<i>Luffa acutangula</i>	Climber	Leaves are simple, subrounded-ovate. two ,thick , oblong, fleshy elliptic, dull green and above light green. Palmetely nerved below	Female flowers are pedicelled, occurring singly in the axils of the leaves. Male flowers are yellow, 2 centimeters long, borne in axillary racemes. Calyx lobes are lanceolate and pointed.	Fruit is oblong-oblongeolate, 20 to 25 centimeters long, about 5 centimeters in diameter, green, and characterized by 10 prominent, longitudinal sharp angles. Seeds are numerous and close-packed.
14	<i>Luffa cylindrica</i>	Climber	leaves: two, thick, oblong elliptic, dull green above , light green below, palmetely nerved. First internode : elongated (4-5 cm),parrot green, terrate, slightly pubescent rough, the axillary buds seem to be active as they develop even at two leaves stage. First Foliage Leaf- first foliage leaf is simple, alternate, petiolate, petiole long, slightly angular, pubescent rough, grooved, above parrot green , exstipulate blade hastate dull green, coriaceous , rough, palmetely nerved, nerves conseipous below, base hastate, apex blunt, margin obscurely sinuous. Subsequent leaves : same as that of first foliage leaf, expect size and grooves i.e. notches are deeper at this stage,seedling shows development of tendrils.	The flowers are monoecious, produced on leaf axils, and consist of five petals of a conspicuous yellow colour, 5-10 cm across, united below in a bell-shaped corolla, open in early morning. The staminate flowers are produced in racemes of 4-20 and contain five free stamens. The pistillate flowers are borne either singly on a separate node or in association with staminate inflorescence.	The endocarp is the edible portion of the fruit that later becomes fibrous and spongy. The fruit is essentially an inferior berry, even though it is called a pepo because of its hard, tough rind when mature
15	<i>Luffa echinata</i>	Climber	Leaves are kidney-shaped, round, shallowly or deeply 5-lobed. Tip is rounded or rarely pointed, bristly on both surfaces, margin is minutely toothed and leaf stalk is stout, bristly, up to 12 cm long	Flowers are white, stalked, about 2.5 cm wide. Male flowers are borne in 5-12 flowered raceme having length up to 15 cm long. Sepal tube is about 5.6 mm long and hairy. Sepals are lance shaped while petals are ovate, 1.0-1.2 cm long, blunt and hairy at the base	Fruits are ashy, oblong, ovoid having 2-5 cm length and densely covered with 4-7 mm long bristles. Seeds are ovate, black 4-5 mm long, 3-5 mm broad and 2 mm thick
16	<i>Momordica balsamina</i>	Climber	Leaves are simple and alternate, borne on a long channeled petiole, is a simple tendril. The leaves are palmate and deeply lobed, the general shape suborbicular wide. Lobes are deeply cut up to half the length of the limb or more. The	The flower are Yellow colour , Monoceous flower The sepals are lanceolate, 4 to 6 mm long and 2 mm wide, glabrous. The petals are yellow, obovate and smooth, 10 to 20 mm long and 7-15 mm wide, and two of them carry a scale at their base. The male flowers have 3 stamens in filets short of 1.5	Fruit is fleshy, broadly ovoid oblong to fusiform, 4 to 20 cm long and 2.5 to 4 cm wide, dehiscent at the top by 3 valves. It is covered with irregular tubercles. It is yellow orange to scarlet. It contains many seeds.

			base is widely cordate, the apex is acute. The margin is irregularly toothed. Both sides are almost hairless .	to 2 mm, and anthers bent "S". Male flowers are larger than female flowers. he flowers are solitary, axillary	
17	<i>Mukia maderaspatana</i>	Climber	tendrils simple. Leaves 4-8 x 3-7 cm, ovate-deltoid, angular or shallowly 3-5-lobed, base cordate, margin denticulate, apex acuminate, mucronate, scabrid on both sides; petiole to 6 cm.	Male flowers in axillary, sessile clusters. Calyx tube to 2 mm, villous; lobes subulate, erect. Petals 5 , c. 3 mm long, ovate-oblong, obtuse, yellow. Stamens 3, free, inserted at base of calyx tube; anthers oblong, ciliate. Female flowers solitary or in clusters.	Fruit are small in size and berry like ovate shape, young fruit Green and Mature fruit red in colour
18	<i>Solena amplexicaulis</i>	Climber	Leaves simple, alternate, cordate, orbicular, rigid hairy, prominently nervedThe plant is glabrous. Tendril unbranched.	Flower yellow in colour and axillary raceme to 5 cm long flower Monoecious. Calyx tubular tube narrow, corolla yellow	Fruit berry, globose, pubescent when young glabrous or maturity, oblong, ovate.
19	<i>Trichosanthes cucumerina</i>	Climber	Leaves kidney-shaped, on about 2 cm long petiole, 5-10 cm in diameter, 3-7-lobed, lobes obtuse or acute, base notched, hairy on both surfaces	Flowers monosexual, white with fimbriate petals. Male flowers in axillary racemes, on paired peduncles. Sepals short, triangular. Petals white, lanceolate-oblong. Female flowers shortly-stalked, solitary, axillary.	Fruits ovoid-fusiform, pointed, red when ripe with white streaks. Seeds embedded in a reddish pulp, compressed.
20	<i>Trichosanthes tricuspidata</i>	Climber	Simple, alternate Leaves are palmately lobed, up to 25 cm long. Base cordate margin denticulate	White in colour, Flowers are unisexual, white, opening at night, with long branching hairs on the margins of the petals. These hairs are curled up in the daytime when the flower is closed,	Fruit berry 9 cm long, globose, red when ripe, pubescent when young glabrous or maturity, oblong, ovate

## DISCUSSION:

The members of the genus *Ctenolepis*, *Momordica*, *Coccinia*, *Cucumis*, *Corallocarpus*, and *Mukia* bears simple tendril while the members of the genus *Benincasa*, *Cucurbita*, *Lagenaria*, *Luffa* and *Trichosanthes* are having branched tendrils. In the *Citrullus colocynthis* tendrils are simple whereas in *Citrullus lanatus* tendrils are robust and bifid. In *Citrullus*, the stamens of the particular pairs are united by the filament as well as anther forming synandria. In *Cucurbita*, the anthers are sinuous and they unite together forming a central column. *Corallocarpus* plant monoecious and stamens are inserted at the mouth of calyx tube. In the genera *Diplocyclos* male flowers are arranged in cluster and both male and female flowers are present on the same axis of the leaves. Most of the members are cultivated for their fruits and commonly their flowering and fruiting period between July-December.

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## Photo Plate-i-

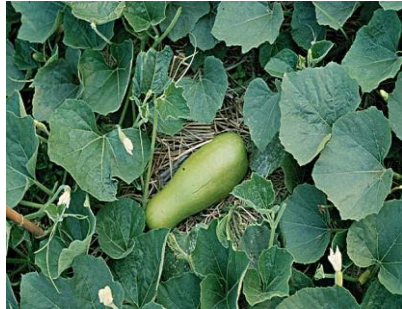
- 1) Plant in their natural habitat (near hut)



## 2) Collection of Cucurbits during field visit

### 1) Winter melon

*Benincasa hispida*



### 2) Bitter Cucumner *Citullus colocynthis*

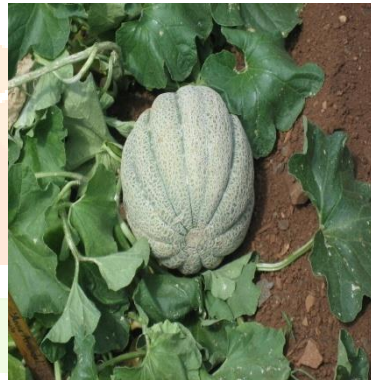


### 3) Ivy guard

*Coccinia grandis*



### 4) Cucumis callosus



### 5) *Cucumis prophetarum*



### 6) Cucumber *Cucumis sativa*



7) *Cucurbita maxima* :



8) *Cucurbita moschata*



9) **Field Pumpkin**

*Cucurbita Pepo*



10) *Diplocyclos palmatus* Jeffery:



11) *Kedrostis rostrata*



12) **Bottle Guard**

*Lagenaria siceraria*



13) **Ridge Gourd**

*Luffa acutangula*



14) **Sponge Gourd**

*Luffa cylindrica*





15) Bitter sponge guard  
*Luffa echinata*



16) Bitter Guard  
*Momordica balsamina*



17) Melon-gubat  
*Mukia maderaspatana*



18) Tarali  
*Solena amplexicaulis*



19) Snake Guard  
*Trichosanthes cucumerina*



20) Indrayan  
*Trichosanthes tricuspidata*

