

4. Results and Discussion :

A check list is given in table 1. Total 24 species (including cultivated) belonging to 13 genera have been recorded for the district. It has been given in the floristic spectrum of Kolhapur district that 12 % are climbers and twinners (SarDesai, 1999) . Almost all cucurbits are climbers. The polarity of the morphological characters have been assessed on the established phylogenetic dicta (Hutchinson ,1973; Takhtajan , 1980; Goldberg ,1986). Phylogenetic work and placement of cucurbitaceae has been done by Shanta and Radhakrishnaiah (1996).

Table 2 depicts the frequency of distribution of cucurbits. Out of 14 localities , Radhanagari, Gargoti and Chandoli areas are rich in cucurbits (Wild). The distribution pattern varies with the locality. Species occurrence and distribution of cucurbits may possibly with response to climatic and edaphic factors (Naik, 1997).

Highest cucurbits were found at Radhanagari and Gargoti and Chandoli areas. *Cucumis setosus* is dominant at Dindewadi .

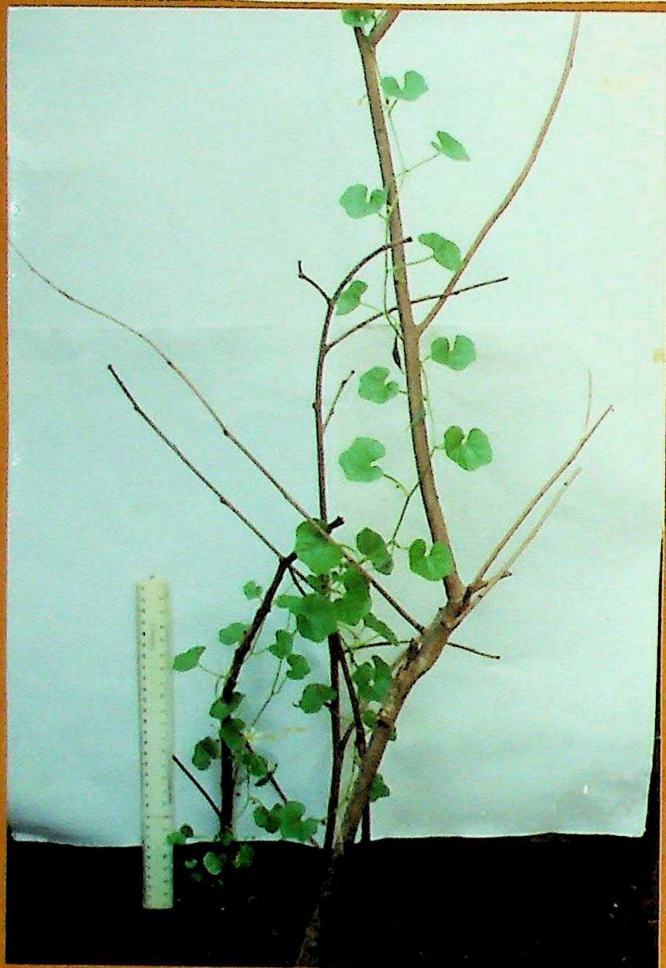
The observation revealed that lowest density of cucurbits were at Hasur. Hasur is Dominated by *Momordica dioica*.

Occurrence of species (table:3) is a very important aspect. *Melothria madraspatana*, *Coccinia grandis* were observed at all sites. *Momordica dioica*, *M. cymbalarica*, *Trichosanthes cucurmerina* are restricted to few sites only. *Cucumis setosus* and *C. callosus* are very confussive species before reproductive phase. *Lagenaria* and *Citrullus colocynthis* are found only at 4 and 3 localities respectively, (Table 4 & Plate 4,)

Melothria heterophylla occurs throught India upto 2100 m (Agarwal and Ghosh , 1985). *Momordica* species occurs in Punjab, Western U.P. , Rajasthan, Saurashtra upto 300 m. Particularly *M. balsamina* is restricted to above states only. Not yet reported from Maharashtra. *Momordica charantia* occurs throughout India and cultivated upto 1500 m.

Plate: 4. *Momordica cymbalarica*

- a) *Momordica cymbalarica* under cultivation (pot culture)
- b) Photograph of *M. cymbalarica* showing fruits





c) *Momordica cymbalarica* collected from field showing ball like tuber.

d) Young and mature plants of *Momordica cymbalarica* showing variation in tuber development.



Table: 1. Taxa of cucurbitaceae investigated. (cultivated and wild)

<i>Citrullus lanatus</i> (Thumb.)	
<i>Coccinia grandis</i> (L.) Voigt	
<i>Corallocarpus epigaeus</i> (Rottle and Willd.) Hook. F.	
<i>Cucumis callosus</i> (Rottl.) Cogn	
<i>Cucumis setosus</i> Cogn.	
<i>Cucurbita maxima</i> Duch.ex.Lamk.	
<i>Cucurbita moschata</i> Duch. Ex . Lamk.	
<i>Diplocyclos palmatus</i> (L.) Jeffrey	
<i>Kedrostis rostrata</i> (Rottl.) Cogn.	
<i>Lagenaria siceraria</i> .	
<i>Luffa acutangula</i> (L.) Roxb.	
<i>Luffa tuberosa</i> Roxb. Fl.	
<i>Melothria heterophylla</i> (Lour.) Cogn.	
<i>Melothria maderaspatana</i> (L.)Cogn.	
<i>Momordica charantia</i> (L.)	
<i>Momordica dioica</i> Roxb.ex. Willd.	
<i>Trichosanthes anguina</i> L.	
<i>Trichosanthes cucumerina</i> L.	
<i>Trichosanthes tricuspidata</i> Lour. Fl.	

Table 2: Distribution and occurrence of some cucurbits in Maharashtra.

Sr. No.	Place of collection	No. of species
1	Amba	6
2	Bolavi	4
3	Chandoli	7
4	Dindewadi	6
5	Gargoti	8
6	Girgaon	5
7	Guhagar	3
8	Hasur	2
9	Katyayani	4
10	Morewadi	4
11	Panhala	5
12	Patgaon	6
13	Radhanagari	8
14	Ujalaiwadi	4

Table 3: Occurrence of some potential cucurbits in and around Kolhapur.

Sr. No.	Species	1	2	3	4	5	6	7	8
1	<i>Citrullus colocynthes</i>	+	-	+	-	-	-	-	+
2	<i>Coccinia grandis</i>	+	+	+	+	+	+	+	+
3	<i>Cucumis callosus</i>	+	-	+	+	+	-	-	+
4	<i>Cucumis setosus</i>	+	-	+	+	+	-	-	+
5	<i>Lagenaria siceraria</i>	+	-	+	-	+	-	-	+
6	<i>Melothria maderaspat</i>	+	+	+	+	+	+	+	+
7	<i>Melothria heterophylla</i>	+	-	+	-	+	+	+	+
8	<i>Momordica cymbalarica</i>	+	-	+	-	-	-	-	+
9	<i>Trichosanthes cucumerina</i>	+	-	+	-	+	+	-	-

Amba	Bolavi	Chandoli	Dindewadi	Gargoti	Guhagar	Hasur	Panhala
1	2	3	4	5	6	7	8

Table 4: Occurrence of some potential cucurbits in and around Kolhapur.

Sr. No.	Species	1	2	3	4	5	6
1	<i>Citrullus colocynthes</i>	-	-	+	+	-	-
2	<i>Coccinia grandis</i>	+	+	+	+	+	+
3	<i>Cucumis callosus</i>	+	+	+	+	-	+
4	<i>Cucumis setosus</i>	+	+	+	+	-	-
5	<i>Lagenaria siceraria</i>	-	+	-	+	+	+
6	<i>Melothria maderaspatha</i>	+	+	+	+	+	+
7	<i>Momordica dioica</i>	-	+	-	+	-	+
8	<i>Momordica cymbalaria</i>	+	-	-	+	-	+
9	<i>Trichosanthes cucumerina</i>	+	-	-	+	-	+

Katyayani	Girgaon	Morewadi	Radhanagari	Ujalaiwadi	Patgaon
1	2	3	4	5	6

Table 5 : Germination studies in cucurbits.

	<i>M. dioica</i>	<i>C. setosus</i>	<i>Lagenaria</i>	<i>Melothria</i>
(Normal)	2%	15%	45%	65%
(Nicked)	15%	55%	58%	88%

Plate : 5.

a) Callus of *Momordica dioica*

b) Profused multishoot induction from callus of *Momordica dioica*.

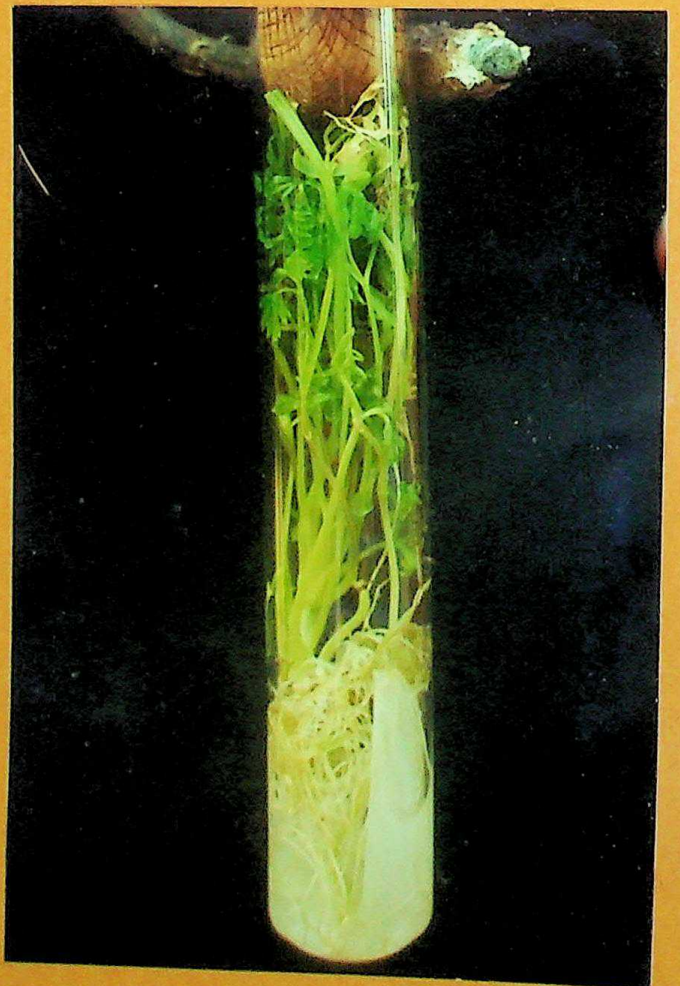
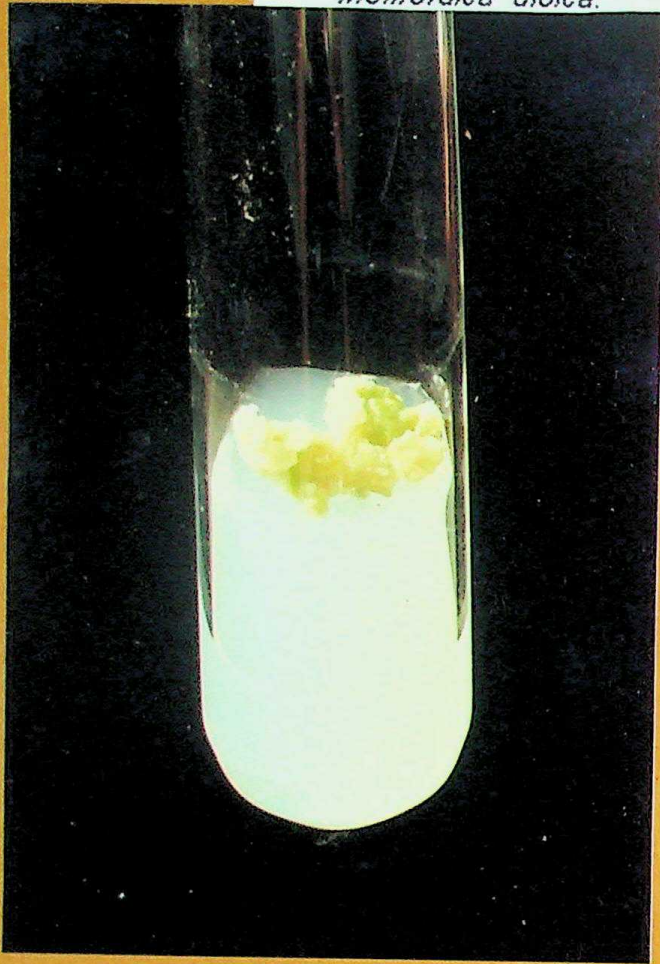


Plate :6. a) Established plantlets of *Momordica dioica* After culture
(one week old plant)
b) Three weeks old *Momordica dioica*

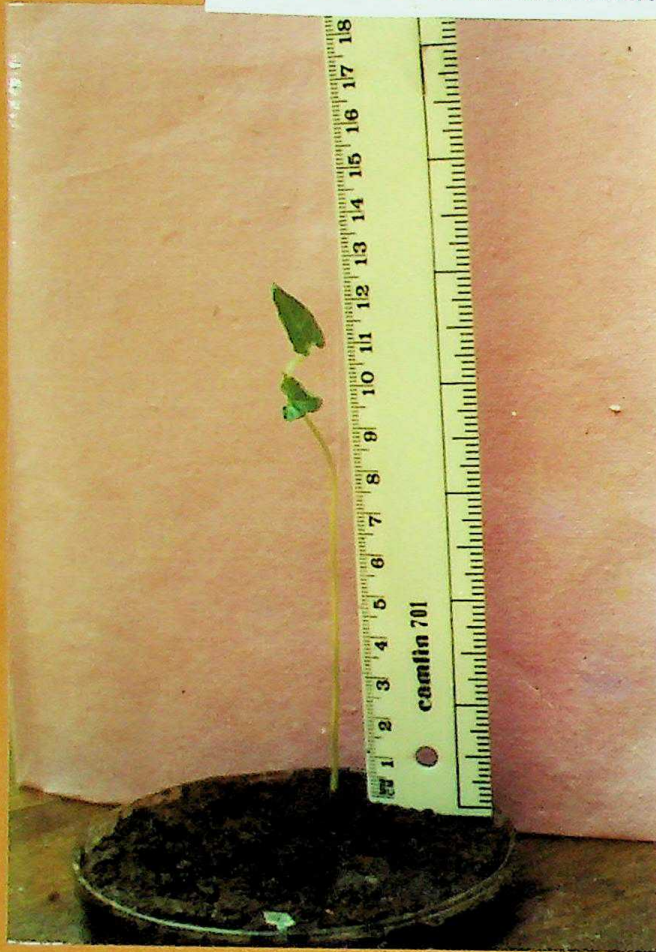


Plate :7.

c) *Momordica* under field condition.

d) Tubers of cultured *Momordica dioica*



Table 5 indicates the percentage germination of some cucurbit species. It is seen that the seed propagation is very low in *Momordica dioica*. This problem can be solved through micropropagation technique. In the present work *M. dioica* was undertaken to induce organogenesis through callus as well as from the explants. (Plate 6, 7); (Plate 9, 10).

Callusing and multiple shoot buds differentiated directly from the explant. After acclimatization, the microshoots were transferred to pots, the survival rate of more densely rooted plantlets were found to be poorer than that of moderately rooted plantlets. In the present piece of work invitro culture of *Cucumis setosus* was also tried, (Plate 8).

Plate: 8.

a) 2-week old callus of *Cucumis setosus*

b) 4-weeks proliferated callus.

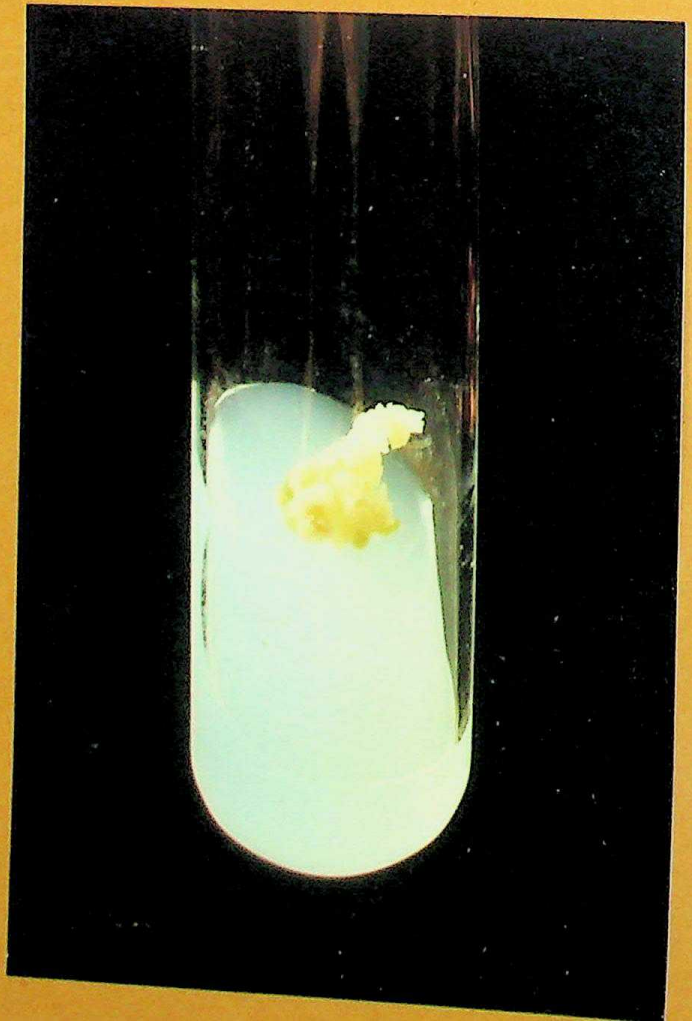
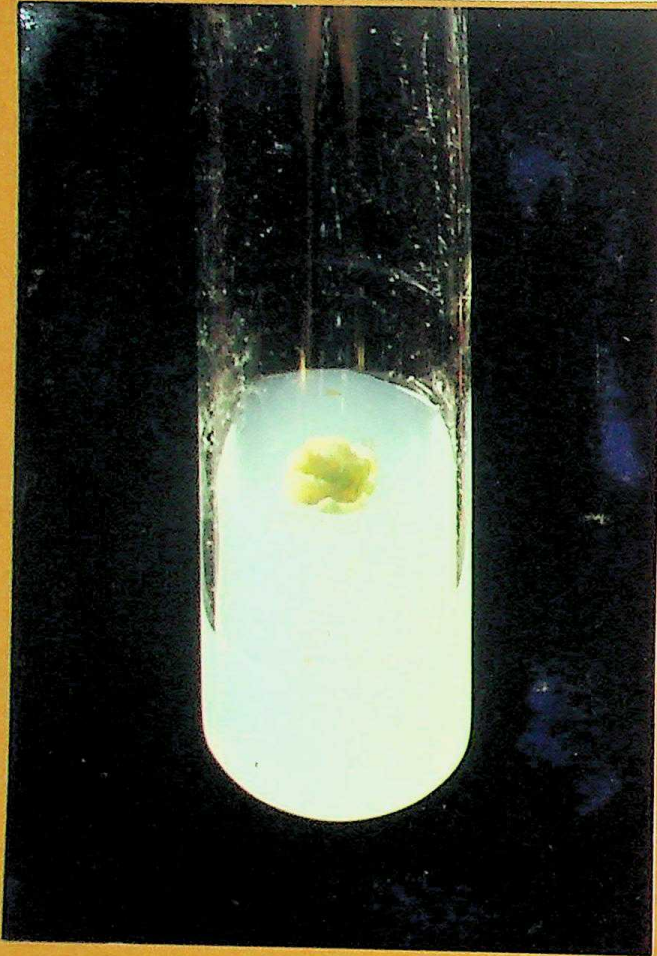


Plate : 9.

Seeds of *Momordica dioica* collected from various localities

- a) Kolhapur c) Sangli.
b) Hasur

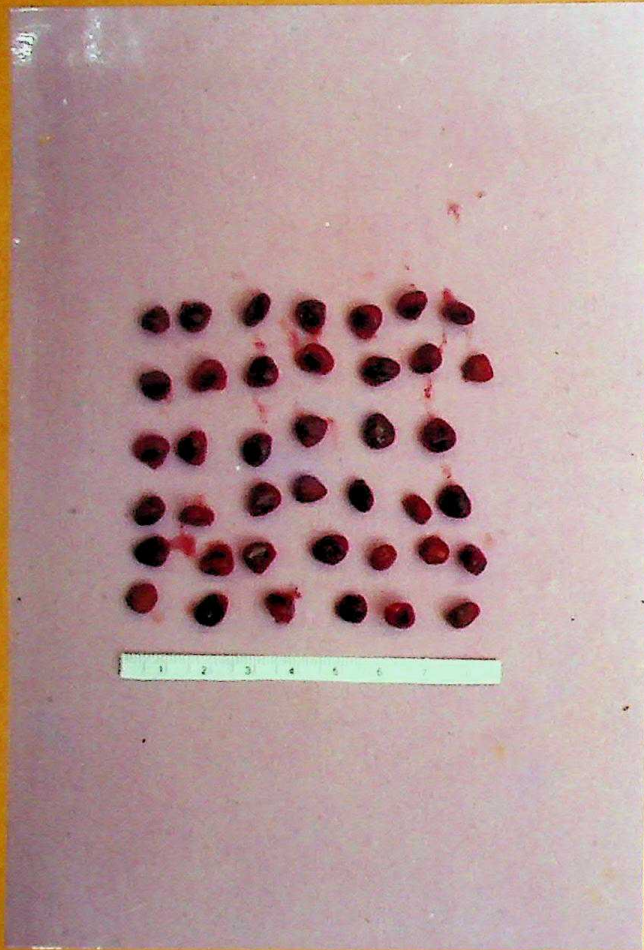


Plate :10.

Germination studies

a) A photograph showing germinating seeds of *Cucumis setosus*

