Comparison of Some Flower Characteristics of *Cucurbita pepo* Accessions

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It is well-known that *Cucurbita pepo* L. is extremely diverse in fruit characteristics. This diversity has been depicted and described in many publications and cultivar-groups have been categorized on the basis of fruit shape (1). In addition to the extreme diversity in fruit size, shape, and color, there is also a great diversity in seed size and relative dimensions (2), in vegetative characteristics and in characteristics of the flowers (4).

Squash flowers have been a culinary item for centuries (3), albeit far less important than the fruits. As part of a preliminary experiment to compare cultivars for suitability for the production and marketing of the flowers, we observed a number of characteristics of the flowers that appear to be relevant: number produced per plant of each, male and female, corolla length and corolla texture.

Seeds were obtained from various commercial outlets and herein are presented the results obtained from 21 accessions. Seeds were sown in flats in a commercial nursery and seedlings were transplanted on 14 April 2004 to the field at the Besor Experiment Station (southwestern Israel). Cultural conditions were as recommended for the season and location and included drip irrigation and fertilization, with a plant population of 15 per $10m^2$. Six plants of each cultivar were observed and flowering began on 15 May. Flowers were picked and counted every other day. On 02 June, corolla length was measured from the base of the corolla to the tip and a tactile evaluation of texture was conducted. The experiment was concluded after approximately five weeks, on 19 June.

The results in Table 1 indicate that large differences occurred among the accessions for number of flowers produced over the period of the experiment. The straightneck, crookneck, and scallop cultivars (all *C. pepo* subsp. *texana*) produced the most flowers, with the one pumpkin tested, one vegetable marrow and one cocozelle not far behind. Plant sexuality also differed greatly, ranging from accessions producing mostly male flowers and to others producing mostly female flowers.

The accessions also differed greatly in the length of the corolla. Generally, the accessions of subspecies *texana* (Acorn, Scallop, Straightneck, and Crookneck Groups) produced smaller corollas than those of subsp. *pepo* (Pumpkin, Vegetable Marrow, Cocozelle, and Zucchini Groups) (Table 1). Furthermore, the flowers, both male and female, of the subsp. *texana* accessions were softer, noticeably less firm than those of the subsp. *pepo* accessions. Nonetheless, great variability was found for these traits within subsp. *pepo*, especially within

the Cocozelle Group. Overall, in this observation plot, corolla length of male flowers was larger than that of female flowers.

The results indicate that a number of cocozelle and zucchini cultivars produce large, firm flowers, which should be well-adapted for culinary use. These cultivars are not as prolific producers of flowers as the subsp. *texana* cultivars that we observed. A replicated trial employing a wider representation of accessions is needed in order to determine if the differences that we observed among subspecies and groups is a general phenomenon.

Literature Cited

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Table 1. Number of flowers produced and corolla length and texture of 21 accessions of *Cucurbita pepo*, Besor Experiment Station, southern Israel.

Accession	Group (ovary shape)	No. flowers			Corolla length (cm)		Corolla texture[z]	
		Male	Female	Total	Male	Female	Male	Female
Taybelle	Acorn	16.8	19.3	36.1	10.5	8.0	1.0	1.0
Jersey Golden Acorn	Acorn	16.0	13.2	29.2	8.8	8.0	1.0	1.0
Sunburst	Scallop	24.3	31.6	55.9	10.8	9.5	1.0	1.0
Early Prolific Straightneck	Straightneck	39.9	26.4	66.3	10.5	8.0	1.0	1.0
Ranger	Crookneck	23.4	34.4	57.8	10.3	9.0	1.0	1.0
Ronde de Nice	Pumpkin	31.5	23.0	54.5	12.8	11.5	1.5	2.0
Blanche non-coureuse	Veg. marr.	7.0	20.6	27.6	12.8	11.0	2.0	2.0
PI 288241	Veg. marr.	35.0	15.4	50.4	14.0	10.0	2.0	2.5
Romanesco	Cocozelle	5.7	20.4	26.1	16.5	8.8	2.5	2.5
Lungo Fiorentino	Cocozelle	38.8	10.7	49.5	13.3	9.5	1.5	1.5
Non-coureuse d'Italie	Cocozelle	15.1	17.8	32.9	12.3	9.3	2.0	2.0
Arlika	Cocozelle	11.3	19.8	31.1	13.0	9.5	2.0	1.8
Striato d'Italia	Cocozelle	19.6	8.2	27.8	11.8	8.5	2.2	2.0
PI 177370	Cocozelle	23.4	7.4	30.8	12.8	11.5	2.5	2.5
Gladio	Cocozelle	--[y]	--[y]	--[y]	14.8	13.8	2.5	2.5
Italiano Largo	Cocozelle	--[y]	--[y]	--[y]	15.8	12.5	2.5	2.5
Goldy	Zucchini	19.3	15.9	35.2	9.5	9.3	1.5	2.2
Nano Verde di Milano	Zucchini	15.7	10.8	26.5	10.8	10.3	2.2	2.5
Fordhook Zucchini	Zucchini	18.8	9.8	28.6	10.5	10.0	2.2	2.3
Raven	Zucchini	13.9	20.1	34.0	11.8	10.3	2.0	2.0
Mikonos	Zucchini	24.1	19.1	43.2	12.8	11.2	2.5	2.5
RSQ7049	Zucchini	8.9	17.3	26.2	11.3	9.0	2.5	2.5
Noche	Zucchini	13.2	31.2	34.4	12.3	10.3	3.0	2.5

[z]Scale of 1=soft, 2=fairly firm, 3=firm

[y]Flowers not counted