8.2.1. ***Pancratium arabicum*** Sickenb., Contrib. Fl. Egypte, Mem. Inst. Egypt. 4: 290 (1895); Boulos, Fl. Egypt 4: 87 (2005).

Susan and burraid (Arabic) (Syrian onions)

Proximate Composition, Carbohydrates and Lipids

The proximate composition of the different parts of the plant is shown in Table 6. The investigation of the carbohydrates of the plant, growing in Egypt, established the presence of fructose, glucose, sucrose, melibiose, raffinose, stachyose and most probably manninotriose and fructose. The plant was found to contain mucilage of β-D-glucan type in all parts, but in different proportions (Table 7) (Rizk, 1963; Ahmed and Rizk, 1963; Ahmed *et al*., 1964). The amino acids identified in the plant were cystine, lysine, histidine, arginine, aspartic acid, glutamic acid, serine, glycine, threonine, valine, alanine, proline, tyrosine, methionine, leucine, isoleucine, phenylalanine and tryptophan. (Ahmed *et al*.,1964).

Table 6. Proximate composition of different plant parts of Egyptian *Pancratium* species*

	Pancratium arabicum	*Pancratium maritimum*	*Pancratium sickenbergeri*	*Pancratium tortuosum*
Moisture				
Bulbs	6.68	5.92	5.70	6.42
Foliage leaves	4.86	5.12	6.60	6.62
Stems	6.33	7.15	—	7.46
Scaly leaves	10.72	11.9	—	8.47
Ash				
Bulbs	5.43	4.07	6.53	2.20
Foliage leaves	12.19	4.34	16.28	9.95
Stems	9.17	6.50	—	6.18
Scaly leaves	—	—	—	—
Total Nitrogen	2.64	2.85	2.33	2.16
Pet. ether, 50-75°C				
Bulbs	1.10	0.61	1.22[a]	0.75
Foliage leaves	3.79	3.94	4.18[a]	3.45
Stems	1.54	1.23	—	1.92
Scaly leaves	1.78	1.39	2.45[a]	2.15

a: Petroleum ether 76-80°c; * Ahmed *et al.* (1964)

Table 7. Mucilage (%) in the different parts of Egyptian *Pancratium* species*

Species	Bulbs	Foliage leaves	Stems
1. *Pancratium arabicum*	12.20	10.00	5.75
2. *Pancratium maritimum*	9.25	7.76	5.58
3. *Pancratium sickenbergeri*	10.20	8.66	6.12
4. *Pancratium tortusosum*	17.45	11.64	4.30

* Ahmed *et al*. (1964)

The total lipids of the different organs of *Pancratium arabicum* indicated that the foliage leaves contained the highest perentage followed by the scale leaves, stems and finally the bulbs. Fractionation of the lipids (based on their solubility in alcohol as well as their physical state) resulted in the separation of three fractions (I, II and III, Table 8). Fractions I and II were found to possess nearly the same unsaturated fatty acids *viz.* oleic, linoleic and conjugated dienoic acids, but in different percentages. Fraction III contained in addition to the above unsaturated acids, minute quantities of linolenic acid (Table 9). The saturated fatty acids were the same in the three fractions *viz.* palmitic, stearic, arachidic and behenic. Ceryl alcohol, 1,21-heneicosanediol and β-sitosterol were identified from the unsaponifiable matter of fraction III (Rizk, 1963; Ahmed *et al*., 1964).

Table 8. Lipid fractions (%) obtained from the different parts of Egyptian *Pancratium* species*

Species	Fraction	B	FL	S	SL
1- Pancratium arabicum	I	0.095	0.41	0.21	0.85
	II	0.05	1.22	0.11	0.20
	III	0.84	0.73	0.56	0.52
2-Pancratium maritimum	I	0.08	0.30	0.16	0.70
	II	0.04	0.92	0.15	0.11
	III	0.40	0.55	0.37	0.40
3-Pancratium sickenbergeri	I	0.05	0.30	0.15	0.80
	II	0.28	1.45	0.24	0.28
	III	0.76	1.30	0.58	0.60
4- Pancratium tortuosum	I	0.075	0.14	0.13	0.88
	II	0.02	0.86	0.30	0.16
	III	0.50	1.20	0.66	0.45

B: bulbs; Fl: foliage leaves; S: stems; SL: scaly leaves; * Ahmed *et al*. (1964)

Alkaloids

The following alkaloids were isolated from the plant: lycorine, tazettine, pancratine, sickenbergine, lycorenine, galanthamine, homolycorine and hemanthidine. The alkaloids from the different parts of *Pancratium arabicum* showed the same qualitative picture but differed quantitatively (Table 10).

Table 9. Fatty acids (%) of the lipid fractions[a] of Egyptian *Pancratium* species

Species	Fraction	Oleic	Linoleic	Linolenic	Diene	Saturated
1. Pancratim arabicum	I	41.99	10.79	—	2.61	44.61
	II	28.44	20.95	—	6.17	44.44
	III	41.71	32.45	2.88	4.82	18.14
2. Pancratim maritimum	I	37.50	12.76	—	2.74	45.00
	II	34.84	13.35	—	7.45	44.16
	III	43.23	29.29	3.35	4.76	19.37
3. Pancratim sickenbergeri	I	48.03	13.84	—	2.35	35.78
	II	33.63	15.18	—	9.01	42.18
	III	52.62	24.87	3.95	4.84	13.72
4. Pancratim tortuosum	I	46.67	9.25	—	2.54	41.54
	II	35.70	13.88	—	8.46	41.96
	III	51.11	22.50	4.70	5.04	16.65

[a]Calculated on the fatty acid basis. (Ahmed *et al*., 1964)

Table 10. Alkaloids (%) of the different parts of Egyptian *Pancratium* specics*

	Pancratium arabicum	*Pancratium maritimum*	*Pancratium sickenbergeri*	*Pancratium tortuosum*
Fraction I				
Bulbs	0.58	0.53	0.68	0.21
Foliage leaves	1.08	0.84	0.89	0.64
Stems	0.97	0.64	0.81	0.52
Scaly leaves	0.17	0.13	0.22	0.09
Fraction II				
Bulbs	0.10	0.08	0.11	0.03
Foliage leaves	0.17	0.10	0.14	0.04
Stems	0.08	0.13	0.10	0.06
Scaly leaves	0.05	0.07	0.06	0.008
Fraction III				
Bulbs	0.005	0.010	0.014	0.003
Foliage leaves	0.007	0.004	0.006	0.006
Stems	0.002	0.004	0.002	0.005
Scaly leaves	0.001	0.002	0.001	0.001
Fraction IV				
Bulbs	0.04	0.025	0.030	0.02
Foliage leaves	0.06	0.020	0.016	0.08
Stems	0.03	0.008	0.004	0.06
Scaly leaves	0.007	0.005	0.002	0.004
Fraction V				
Bulbs	0.725	0.655	0.834	0.263
Foliage leaves	1.263	0.964	1.052	0.766
Stems	1.082	0.782	0.916	0.645
Scaly leaves	0.228	0.207	0.283	0.103

* Ahmed *et al*. (1964)