

Chemical standardization of *Portulaca oleracea* v. *sativa*

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Several reports on the medicinal importance of *Portulaca oleracea*, a succulent herb of *Portulacaceae* family, appeared in the literature (Miller et al. 1988; Rizk 1986) but very few reports in the literature describe the standardisation of the herb.

The present study, based on pharmacognostic, physicochemical and analytical characteristics, aims to setup chemical standards for a cultivated variety of *Portulaca* (*P. oleracea* var. *sativa*), that is also used as food salad.

The leaves and stems of *P. oleracea* were studied macroscopically & microscopically. Standard procedures from the Pharmacopoeia were used to determine various parameters. For the powdered plant material total ash (TA), acid insoluble ash (AIA) and water soluble ash (WSA) were determined. Loss in weight on drying at 105°C (LWD), pH of 1% and 10% aqueous solutions (pHA), solubility in water (WS) and alcohol (AS) were determined (Table 1). The powdered material was successively extracted with petroleum ether (SPE), chloroform (SC) and alcohol (SA). IR, UV, and TLC fingerprinting were carried out for different successive extractives (SE) (Table 2). The presence of steroids, terpenoids, proteins, vitamins, flavonoids contents were confirmed qualitatively in aforesaid extractives, whereas the ash analysis showed the presence of iron, calcium and potassium.

The four batches of 10% aqueous alcoholic extracts (AAE) of *P. oleracea* var. *sativa* collected at different times qualitative patterns and quantitative characteristics.

10% alcoholic extract was treated with CHCl₃:MeOH:H₂O and non polar (CHCl₃) part gave 5 peaks at 1.29, 1.46, 2.64, 3.07 and 4.61 minutes

whereas the polar part (MeOH) gave 3 peaks at 1.40; 2.05 & 2.20 minutes using acetonitrile & water (1:1) MeOH: Acetonitrile (1:1) as mobile phases using Noapack C₁₈ and μ bonda pack C-18 columns respectively at 254nm.

Table 1: Physico-chemical data (values in % as dry weight).

TA %	24.80	WS %	33.5
AI %	1.40	AS %	3.6
WSA %	14.0	LWD %	7.05
pHA (1%)	6.58		
pHA (10%)	6.11		

Table 2: Physicochemical - analytical characteristics for different extractives of *Portulaca oleracea* var. *sativa*.

Extractive	SPE	SC	SA	10%AAE
%values	3.05	1.4	7.5-8.5	32-38
IR (cm ⁻¹)	3419	3419	3382	3380
	2920	2920	2927	2919
	2850	2850	2852	2852
	1350	1350		
UV (nm)	210,270	211,269	211,270	
	666	410,663	652	
TLC	C ₆ H ₆ : CHCl ₃	C ₆ H ₆ : CHCl ₃	C ₄ H ₉ OH: CH ₃ COOH:	CHCl ₃ :MeOH H ₂ O
	(3:5)	(3:5)	(5:1:4)	(64:50:10)
	12 spots	9 spots	4 spots	9 spots

Pharmacognostic study, physicochemical constants, IR, UV, HPLC results and TLC examination revealed that all four batches of *Portulaca* were same, thus establishing the chemical standardization of the raw material *Portulaca oleracea* var. *sativa* along with standardization of its method of processing.

References

- Miller G. Anthony, Morris Miranda (1988) Plants of Dhofar. 236,239.
Rizk, AM (1986). The Phytochemistry of the flora of Qatar, 32.