

Scientific Studies on Ochradenus Aucheri Boiss

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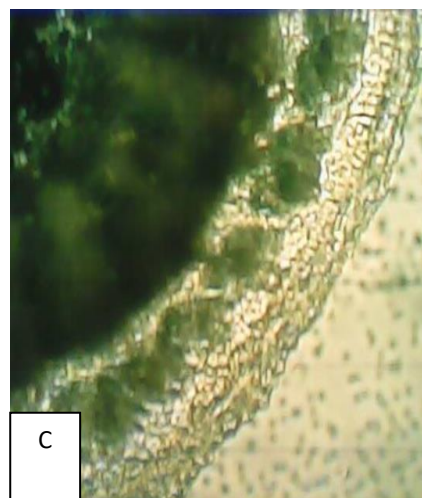
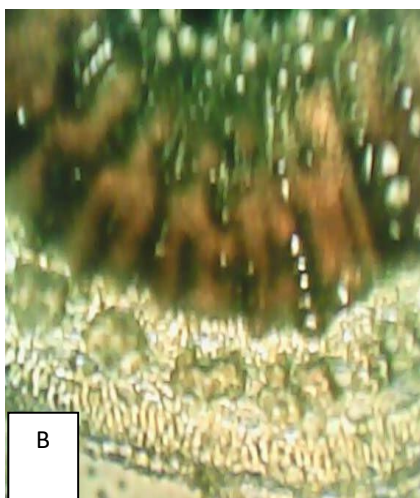
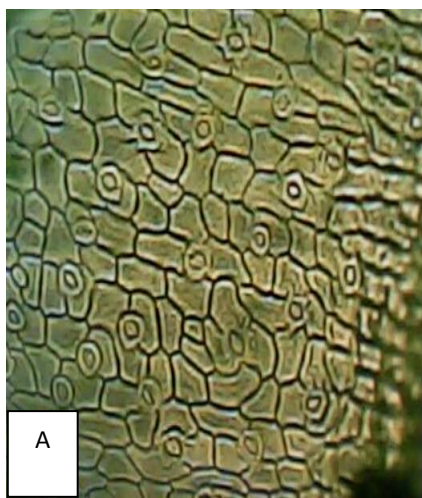
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Ochradenus aucheri Boiss. (*Jesh*) belonging to family Resedaceae usually found in sandy areas, hillsides, and mountains. Common in southern and eastern Iran to Pakistan and Muscat. Very common throughout mountains at lower elevation and on alluvial gravels in the

northern Emirates. Rapidly colonizes new roadsides, e.g. around Hatta (Western, 1989). Unripe fruits eaten as treatment for digestive problems (El-Ghonemy, 1993).



Leaves and Stem



A-Surface view of the stem showing the different forms of epidermal cells with a number of oval stomata.

B-TS of a portion of the stem showing from the periphery inwards: cells of the epidermal layer, yellow cortical parenchyma cells, isolated groups of lignified fibers, layers of white distorted parenchyma cells, then

heavily lignified vascular tissues separated longitudinally by medullary rays.

C-An oblique TS of a portion of the stem showing the patterns of the different layers constituting the stem.

Chemical Constituents:

The following chemical studies have been carried out (Quality Control Methods, 1998; Evans, 1996) on the plant *Ochradenus aucheri* as Phytochemical studies.

Isobornyl acetate; oleic acid; 1-Phenyl-3-butan-1-ol; palmitic acid; dimethyl diethoxy silane; stigma sterol; beta -sitosterol trimethyl silyl ester; 3',4',7-trimethyl quercitin (ZCHRTM unpublished work).

Physicochemical Constants (%):

Loss of weight in drying at 105 °C : 9.20

Absolute alcohol solubility : 3.20

Water solubility : 17.60

Successive Extractives (%):

Petroleum ether (60-80 °C) : 0.70

Chloroform : 1.75

Absolute alcohol : 7.25

Ash Values (%):

Total ash : 5.33

Water soluble ash : 3.33

pH values (aqueous solution):

pH of 1% solution : 5.215-5.230

pH of 10% solution : 4.860-4.862

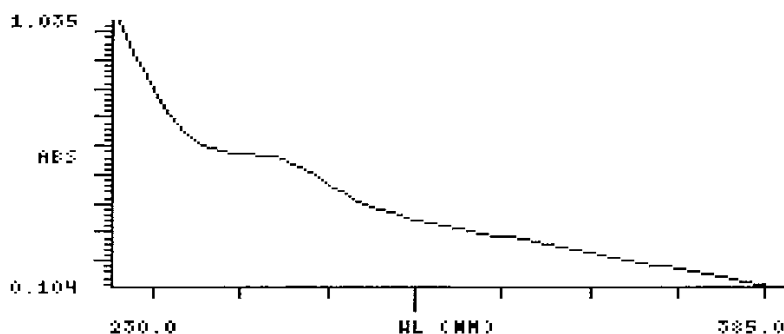
Elemental Analyses:

Ash values (British Herbal Pharmacopeia- Reference)					
Assay and identification of element (AOAC International- Reference)					
Apparatus (AA-6800 Shimadzu-Flame method)					
Element	Std. conc. $\mu\text{g/ml(ppm)}$	Sample conc. mg/ml	Sample absorbance	Actual conc. mg/ml	Actual conc.(%)
Cr	1, 2, 4	20	0.0000	0.0000	0.0000
Zn	0.25, 0.5, 1	20	0.217	0.010585	0.0010585
Cu	1, 2, 4	20	0.0244	0.006895	0.0006895
Fe	1, 2, 4	20	0.0760	0.03199	0.003199
K	1, 2, 4	1	0.5530	4.976	0.4976
Pb	1, 2, 4	20	0.0024	0.00361	0.000361
Cd	0.25, 0.5, 1	20	0.0023	0.000105	0.0000105
Ca	5, 10, 20	1	0.0093	1.7447	0.17447

1ppm conc. = $1\mu\text{g/ml}$; Actual conc. (%) = Actual conc. (ppm) x 0.0001 [1ppm= 0.0001%]

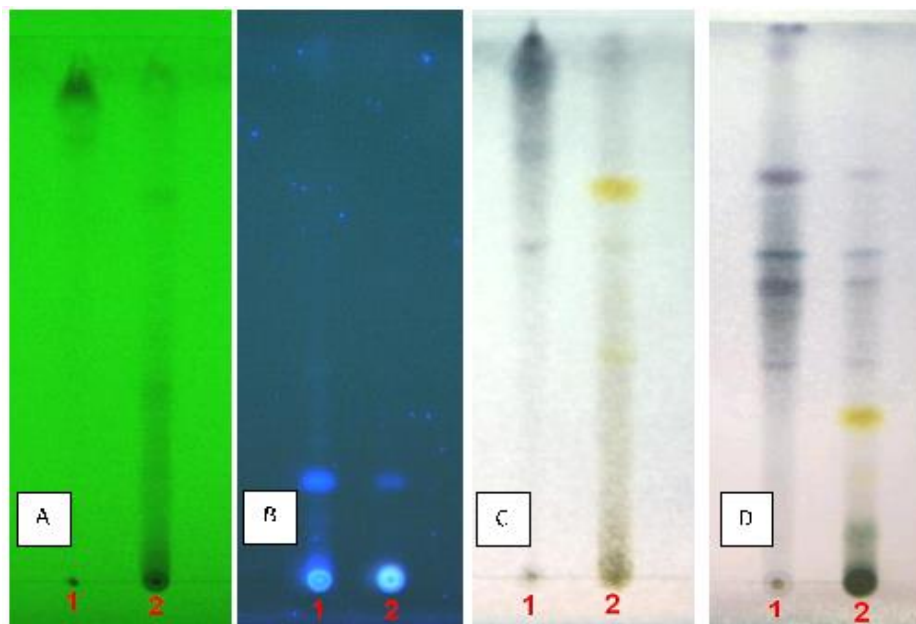
UV Spectral Studies:

Ultraviolet Spectrum (USP reference)				
Apparatus Milton Roy Spectronic Genesys 5 Spectrophotometer - Milton Roy.				
Sample conc. (mg / ml)	Solvent	λ max (nm)	λ min (nm)	Abs.(λ max - λ min)
1.00	Intestinal Fluid simulated without pancreatic pH= 7.5 ± 0.1	No shift	No shift	-
1.00	Gastric Fluid simulated without pepsin pH= 1.2 ± 0.1	No shift	No shift	-



Intestinal Fluid simulated without pancreatic pH= 7.5 ± 0.1

Thin Layer Chromatography (TLC): Wagner (1996)-Reference



TLC fingerprint of Petroleum ether 60-80 °C (track 1) and MeOH extract (track 2)

Mobile phase 1 FigA, B & C: Ethyl acetate, methanol, water (100:13.5:10)

D: Toluene, ethyl formate, formic acid (5:4:1)

Detection A: UV 254nm

B: UV366nm

Derivatization C & D: Vanillin-Sulphuric acid –vis.

Pharmacological and Toxicological Studies:

Reported information literature and about the plant reveals

There is not enough scientific research data and information recorded in literature about this plant; more work needs to be conducted to discover the nature and value of *Ochradenus aucheri*.

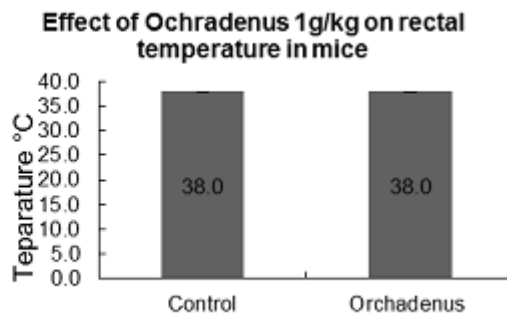
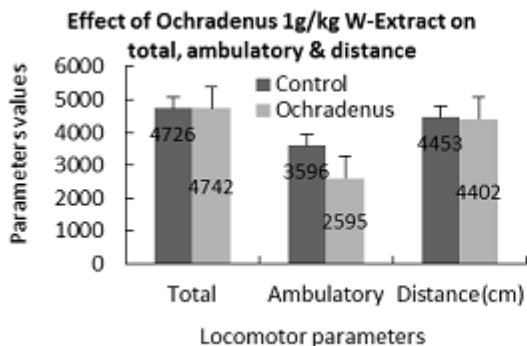
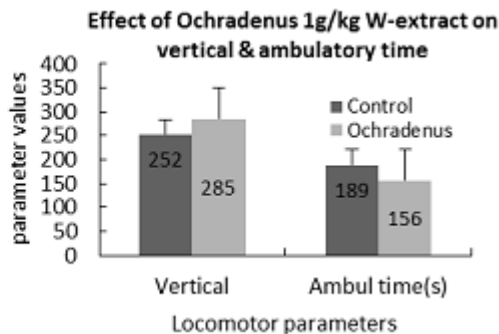
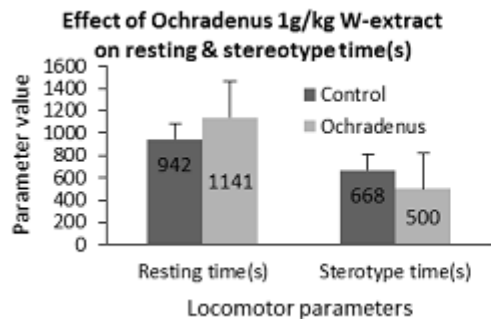
Considering the mean of accumulating heavy metals, plant species accumulating heavy metals by this order are *Pergularia tomentosa*, *Eucalyptus sp.*, *Convolvulus sp.*, Family Graminaceae, *Rhiza stricta*, *Ochradenus baccatus*. According to the mean of BAFs, heavy metal concentration of Cd was found to be significantly different than Cu, Pb and Zn. From above, these plants should be described as not-excluder and can be explored further for phytoremediation of metal polluted soils. On other hand, the practice of providing foliage and pods as fodder for livestock should be avoided (Farraj, 2007).

The following pharmacological and safety and efficacy evaluation studies were carried out on the plant aqueous extract. (Derelanko 2002; Han, 2003).

ACTIVITY	RESULTS			
	Strong	Moderate	Mild	Negative
Antidiarrheal activity	√			
Urine analysis				√
Effect on rabbit jejunum	√			
Effect on rat fundus			√	
Effect on right rat atria			√	
Anesthetized rat (BP & HR)			√	
Effect on guinea pig tracheal chain				√
Acute toxicity				√
Locomotor activity test				√
Motor co-ordination (grip strength & motor activity)				√
Rectal temperature				√
Body weight				√
Mortality				√

Conclusion

The plant extract shows antidiarrheal activity and has a digestive and carminative nature. It showed no toxicity.



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