



CERTIFICATE OF ANALYSIS

BATCH CODE:
MANUFACTURE DATE:
EXPIRY DATE

PELARGONIUM SIDOIDES MILLED POWDER

AFRPS0516
05/2016
04/2019

Description	MOA	Specification	Result
Species		Pelargonium sidoides	Complies
Common name/s		Umckaloabo	Complies
Part Used		Tuber	Complies
Origin		Eastern Cape, South Africa	Complies
Taste		Slightly bitter, acidic, woody	Complies
Chemical classification		Organic, nutritive	Complies
Quality Control reference standards		Complies to reference standard for milled herbs/ extracts African Herbal Pharmacopoeia (AfrHP)	Complies
Appearance		Reddish, brown	Complies
Moisture	*Bemlab	Not more than 8%	Complies
Loss on Drying	*Bemlab	Not more than 12%	Complies
Total Ash	*Bemlab	Not more than 3%	Complies
Ash insoluble in hydrochloric acid	*Bemlab	Not more than 3%	Complies
Scan for Active ingredient			
Umckalin	**CPUT	NLT 100ppm	217,3 ppm
Other Tests			
Benzo(a)pyrene	Not more than 0.05mg/kg	None Detected	Benzo(a)pyrene
Microbiology			
Staphylococcus aureus	SWJM53	No Growth/Absent	Complies
Salmonella spp	SWJM58	Absent in 25g	Complies
Escherichia coli	SWJM62	Absent in 1g	Complies
TMA	SWJM35	No more than 500,000 cfu/g	Complies
Yeast and Mould	SWJM50	Not more than 50,000 cfu/g	Complies
Coliforms	SWJM48	Absent	Complies
Bile-tolerant gram-negative bacteria		Not more than 10,000 cfu/g	
Aflatoxins			
Aflatoxins - B.1	*Bemlab	<2.0ppb (Ph.Eur., 2.8.18)	Complies

Description	MOA	Specification	Result
Aflatoxins - B.1, B2, G1, G2	*Bemlab	<4.0ppb (Ph.Eur., 2.8.18)	Complies
Pesticides			
Aldrin and Dieldrin	*Bemlab	Not more than 0.05mg/kg	Complies
Heavy Metals			
Total Heavy Metals		Not more than 20ppm	Complies
Lead (Pb)	GFAAS	<5.0 ppm (Ph.Eur., 2.4.27)	Complies
Mercury (Hg)	QALHg (Cold vapour AAS)	<0.1ppm (Ph.Eur., 2.4.27))	Complies
Cadmium (Cd)	GFAAS	<0.5ppm (Ph.Eur., 2.4.27)	Complies

Tests	Limit	Method						
Appearance	A. The root is covered with dark, partly reddish-brown, longitudinally fissured bark. The transverse section shows, underneath the cork layer, yellow or white wood, which clearly shows partly brownish medullary rays.	Visually						
	B. The powder is brownish-red. The powder examined under microscope using chloral hydrate solution R shows the following diagnostic characters: multilayer cork cells consisting of almost uniform, rectangular cells; fragments of parenchyma underneath the cork containing scleroids with a wide lumen; numerous calcium oxalate cluster crystals. The powder examined under a microscope using a 50 per cent VV solution of glycerol R shows simple starch granules without striations or cracks.	(Ph.Eur. mon. 2.9.12)						
	<p>c. TLC</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Top of the plate</th> </tr> </thead> <tbody> <tr> <td style="width: 50%; vertical-align: top;"> Scopoletin: a very bright blue fluorescent zone _____ Esculin: a very bright blue fluorescent zone _____ </td> <td style="width: 50%; vertical-align: top;"> A blue fluorescent zone A weak blue fluorescent zone (scopoletin) _____ One or two bright blue fluorescent zones A blue fluorescent zone A weak blue fluorescent zone _____ A blue fluorescent zone </td> </tr> <tr> <td style="text-align: center;">Reference solution</td> <td style="text-align: center;">Test solution</td> </tr> </tbody> </table>	Top of the plate		Scopoletin: a very bright blue fluorescent zone _____ Esculin: a very bright blue fluorescent zone _____	A blue fluorescent zone A weak blue fluorescent zone (scopoletin) _____ One or two bright blue fluorescent zones A blue fluorescent zone A weak blue fluorescent zone _____ A blue fluorescent zone	Reference solution	Test solution	Ph.Eur. mon. 2.2.27
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Reference solution	Test solution							
Packaging	Material is packed inside 2 x inner PVC plastic bag (clear plastic) and 1 x outer agricultural bag (PVC plastic weave). 25kg net per bag. Dimensions: 60X40X30cm.							
Storage	Pelargonium sidoides dried tuber (Code: AFRPS) is dried plant material and should be stored according to pharmacopoeia guidelines for medicinal plants with the following instructions: Storage: Store at room temperature, from 15°C to 30°C in a dry place, protected from light.							

Tests	Limit	Method

These values correspond with guidelines as published by WHO (1998), AfrHP (2010) and Ph. Eur and are for general guidance only. National or other pharmacopoeial standards may need to be adhered to and may impose different standards.

NA = Not Applicable. ND = Not Determined.

Storage: Goods should be stored according to national pharmacopoeia guidelines for herbal extracts.

MOA NOTES:

SWJM Methods = SANAS Accredited testing laboratory 10050 methods.

*Bemlab Method = MOA of Bemlab Laboratories Pty Ltd

** CPUT Method = MOA of Cape Peninsula University of Technology alkaloids identification method.

*** SUN = MOA of Stellenbosch University

Ph.Eur = Specification according to European pharmacopoeia