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Entire enumerated details about adenium obesum

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Abstract :

The ornamental plant *Adenium obesum* is the most Beautiful plant . This plant comes under the family *Apocynaceae*, this family is also called as the dogbane family. This family includes more than 415 genera and about 4600 species. These family is distributed primarily in tropical and sub tropical regions all over the world. It belongs to the order *Gentianales*. Other names of the plant are Sabi star , Kuda, Mock, Impala lily and Desert rose. In this paper the basic knowledge about the plant external and internal morphology, physiology and the nutritional requirements of the plant for it's growth and metabolic activity. This plant requires the minimal amount of the water therefore it was named as desert rose. It is an angiospermic woody plant. This exquisite plant was mostly found in house. Its look so woody but not sturdy, the compound flower appears like a rose . In this plant the bottom portion is so broader than its top. It looks like a tree but, it is a shrub .It has an ability to grow in a small container. This plant is less toxic in nature not only for humans also for the elephant via it may have the ability to penetrate through the skin and causes intoxication.

INTRODUCTION:

Adenium obesum is an ornamental plant and its origin is from Africa, its common name is desert rose. In this present world it plays a vital role as an ornamental plant in houses particularly in India. In this plant more difficulties are associated in India, because of the wet and warm weather. India eagerly involves in work to isolate medicinal values from this plant. Basically it plays its own natural activity and it belongs to the family *apocynaceae* (dogbane family). This family mostly included in tropical species. The flower looks like a rose but it is totally

unrelated to other rose family. The former family *Asclepiadaceae* is included in family *Apocynaceae* according to angiosperm phylogeny group III (APG III) modern, largely **molecular**-based system of flowering plant **taxonomy**. An updated classification, including 366 genera, 25 tribes and 49 sub tribes. In the olden literature it is referred as *A.arabicum*. In lower-Sahara region of Africa is fully covered with these plant and that place is also the origin of that plant and some of the places like Kenya and estward to Senegal and south to Natal and Swaziland and Arabian peninsula were also listed. Different type of substrate is used for the production. These plant inhibit high flowering rate in the period of summer. Plant latex and root plays a big role in the medicinal activity, its latex is so strike in nature and that latex is looks like golden brown in color. It survives at the hot condition to save water in their soft swollen root and stem. It is only harmful for some kind of the species fish and rat, pounded root is venomous for the fish and fodder, pounded seed is venomous for rat. The germination is so easier, so no external treatments are needed for this. This kind of plant is mostly seen in semi-aired climate. The name A*denium* is derived from the Arabic name oddaejn, which mean adean, the former name yemen. The fact adenium is referring it's grossly thickened trunk. This plant is widely used in the warm climate region. It causes skin irritation leading to internal poisoning. It is a good source of therapeutic agent. It shows less side effect in their medicinal properties.

Systematic position:

Kingdom : *Plantae*

Sub kingdom: *Tracheobionta*

Sub division : *Spermatophyta*

Division: *Magnoliophyta*

Class: *Magnoliopsida*

Subclass: *Asteridae*

Order: *Gentianales*

Family : *Apocynaceae*

Genus: *Adenium Roem. & Schult.*

Species: *Adenium obesum* (Forssk.) Roem. & Schult.

General plant description:

Adenium obesum is succulent deciduous pachycaul (with thickened stem) shrub or tree .The stem base is attractive swollen trunk is flashy, smooth and bulbous. The swollen base (caudex) is almost globose to conical, and then moves to narrowly cells which are divided to grow. It is irregularly branched that makes a unique and attractive for bonsai and its color is grayish-green to browned and its curved end, there are color changes found dark green to blue green and it is one of the observable character. The flower is white or pale pink to dark rose in color, they are single in nature but found one near the one and the edges are somewhat dark color and it inner center is hallow and yellow shadow in color and its shape it was trumpet and its petal is wavy in nature.

Plant physiology:

Vegetative characters:

Habitat: shrubs, woody vines, and herbs.

Habit: There is a great variation in the habit of the plants of this family. They may be herbs, erect or twining shrubs or trees.

Stem: Erect, smooth, woody, branched, herbaceous, glabrous, tuber and thick, golden color latex.

Leaf: Simple, petiolate, opposite decussate, grouped at the tip of the branches, midrib, paripinate, leaf base is small projection is found.

Floral characters:

Inflorescence: Monochasial cyme.

Flower: Complete, actinomorphic, pentamerous.

Calyx: Five sepals, green, gamosepalous.

Corolla: Five petals,coloured,funnal-shaped,hairy.

Androecium: Non anther, hairs

Gynoecium:simple

Fruit: Hyphea like structure

Seed: Winged pollen

Mineral value of adenium:

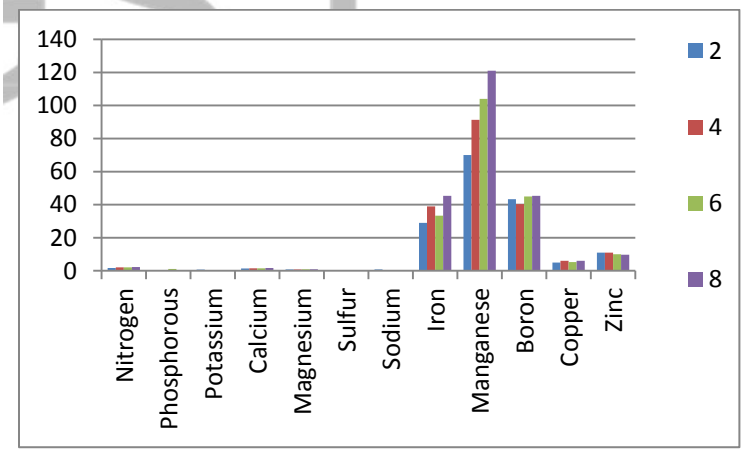
The mineral value are based on the fertilizer and the growth rate and the values are differ from one part to another so that they are exploded by graphical presentation.

In flower:

Fertilizer

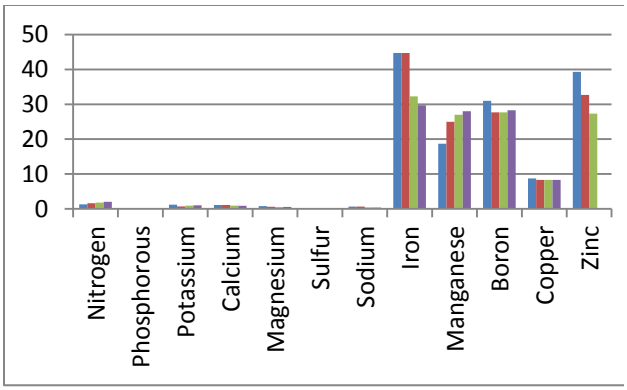
In leaves:

Fertilizer



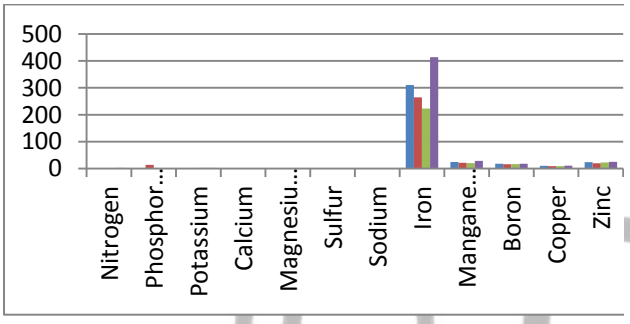
In stem:

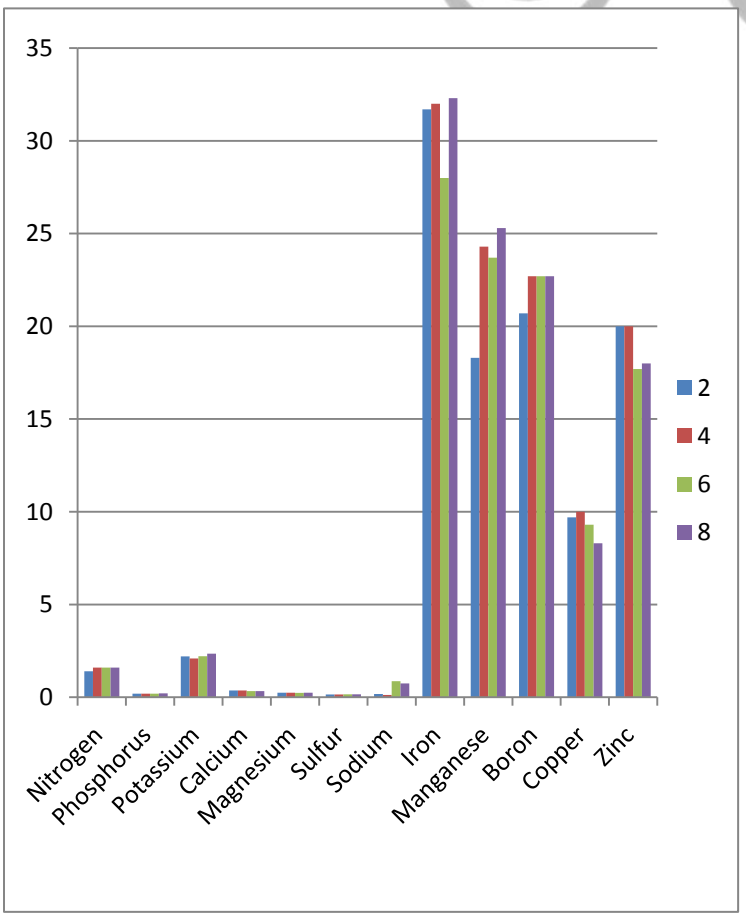
Fertilizer



In root:

Fertilizer





Beneficial role play by adenium:

The beneficial effects of adenium are involved in many fields and they are mostly beneficial to the humans and dangerous to the microbes presented in our surroundings are given below.

S. No	FIELD	COMPOUND	LOCATION	USES
1	Anti cancer activity	Ethanol extract	Aerial parts	cytotoxic property against epidermoid carcinoma of the nasopharynx test system of human beings.
2	Anti viral activity	Methanolic extract	Stem	*vitro* anti-influenza virus activity using influenza virus A/PR/8/34 (H1N1).
3	Antibacterial activity	Aqueous Extract	Stem bark	antibacterial potential against different hospital borne pathoge

		Methanolic and petroleum ether Extract		nic bacterial strains, namely, *Proteus mirabilis*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Escherichia coli*. potent antibacterial property against several pathogenic Gram negative bacteria strains, namely, *Escherichia coli*, *Neisseria gonorrhoea* and *Salmonella typhi*
4	Antioxidant activity	Methanolic extract	Flower	Activity against the oxidant organism
5	Trypanocidal	Methanol	Stem bark	trypanocidal
	activity	extract		activity against *Trypanosoma brucei*.And 50% of the motility of *T. brucei in vitro* at 4 mg/mL
6	Larvicidal Activity	Dichloro methane extract	Tuber part	larvicidal activity against *Aedes aegypti* mosquito larvae, vector of yellow fever, dengue hemorrhagic fever diseases
7	Acaricidal activity	Aqueous Extract	Stem bark	acaricidal activity against the ticks *Boophilus* and *Amblyomma*
8	Molluscicidal activity	Methanol extract	Stem bark	used to control the snail *Bulinus truncates*
9	Piscicidal Activity.	Ethanol extract	Stem bark	very toxic which can be used as a

				tool for management of aquaculture pond before stocking of desired fish species was evaluated in *Clarias gariepinus*

The one more beneficial role played by the adenium is different cured extract from the stem is used for exhibited strong free radical scavenging activity .

Toxic role play by adenium :

It rarely gives toxicity to the animals especially dog. It was identified by the Americans. One of the toxic compound is present in the adenium is glycosides which causes internal irruption and skin problem . The glycosides are presented in the sap of the plant. African hunters uses the adenium for various purpose.

Effects :

If the dog eats desert rose plant, leads to vomiting, diarrhea, gastrointestinal pain, excessive drooling and blistering of the mouth and throat. According to Whitney Veterinary Hospital, the sap can also lead to blistering and redness of the skin, if the dog simply brushes past the plant. For irritated skin issues, wash the sap off of the dog's skin using a nontoxic, gentle soap before bringing your pooch into the vet. Wear gloves so it doesn't get on your hands. If Fido has ingested any of the desert rose, go to the vet immediately. In severe cases of poisoning, your pup may experience heart problems that can be fatal in some cases, warns the ASPCA.

Micro propagation of adenium:

The term micro propagation is to produce vast population of plant in a short period of time. This technique is simpler and lab orientated process. In this process the first forming particle is callus and then the further development undergoes. The micro propagation is done in the MS medium and supplement with the NAA and BAP culture in certain amount.

Micro propagation:

The above four images make you sure the formation of the callus formation from the seed and the further development.

And the mathematical and the experimental valuation make the conformation about the Microprapacation of the plant adenium.

S.No	Hormone concentration (mg/L)	Explants	%Callus
	NAA+BAP		
1	0.5mg/L +0.5mg/L	Leaves stems	73.33-13.58 99.04-0.95
2	0.5g/L m+1.0mg/L	Leaves stems	68.57-6.61 95.45-2.52
3	0.5g/L m+1.5mg/L	Leaves stems	85.15-3.75 100-0
4	0.5g/L m+2.0mg/L	Leaves stems	NR NR
5	1.0g/L m+0.5mg/L	Leaves stems	100 0
6	1.5g/L m+1.0mg/L	Leaves stems	100 0
7	Control	Leaves stems	NR NR

Sub developmental growth:

The universal plant we may can observe only the three types of reproduction only. They are Asexual ,sexual and vegetative process only but in the modern world one more special type of sub divided growth is occur in the plant adenium obesum. And this type is very crucial and amaze vie one it was just a process like fusion and similarly to the formation of branches but there we can observe the slight differences among them. This differential character was observed after the formation of viable seed formation , in pre existed state the seeds are covered by the small hyphea like structure in the young stage it looks in green color and the after developmental stages it was blast in the longitudinal axis and then the seeds are spreads through the wind and they are more active in the first eight to seventeen day and

Media	AD(gL-1)	WHC(mL L-1)	pH	EC(mS cm-1)
S	1,38.0	527.1	6.8	0.1
CF	103.6	732.4	6.2	0.3
PB	274.4	378.7	4.7	2.3
S+CF	838.0	497.5	5.8	0.2
S+PB	1,026.0	441.0	7.2	1.9
CF+PB	273.3	486.3	6.7	1.7

then they make a new and young plant of adenium. And we could come back to the origin we can notice the small projection of space between the node and the inter node portion of the stem, later that should be enlarge to form a diploshoot. The term diploshoot is referred as two lateral branches at the basal site of the plant. This concept is simply referred as sub developmental growth.

General character of cultivation:

There is much more difference in the indoor and outdoor cultivation we can see the specificity.

Indoor Cultivation:

This plant requires high amount of sunlight so indoor cultivation is not advices to be abled one. The soil content must be neither rich organic beats nor bark-based. Water flow must be regular but not allow the soil to be water logged .One of the most beneficial role of this plant is to be drought tolerant and salt tolerant. It is also tolerant to chill condition but there is a drawback, there possibility to yellowing of leaves and to fall.

Outdoor Cultivation:

In the outdoor one of the most useful think is to do the performance of the sunlight because this plant is more active at the site of the presence of light it may induce the flowering. So far, it is the best one. Here also the plant should be tolerant to the salt, drought and chill condition. But even here also the damage of leaves happen at lowering of temperature.

Media	EM (%)	EST	DMR (g)	DML (g)	DMS (g)	NL	DC (mm)	CL (mm)	TRL (cm)
S	91	6.22	0.013	0.013	0.070	5.10	9.61	27.11	4.84
CF	84	4.09	0.023	0.028	0.117	7.20	10.34	31.83	4.74
PB	97	5.45	0.030	0.028	0.137	8.70	11.26	32.51	5.19
S+CF	83	4.92	0.020	0.020	0.097	6.63	10.41	27.86	5.24
S+PB	93	5.61	0.032	0.023	0.127	8.35	10.57	31.53	4.74
CF+PB	98	5.37	0.018	0.020	0.107	6.13	9.60	29.21	4.83

Adenium in different growth media:

The plant adenium obesum is subjected to the different media for the particular time period at the moment water holding capacity, Ph and electrical conducting capacity let simply as the physical and chemical character of media are noticed.

MEDIA: (S) sand, (CF) coconut fiber, (PB) semi-composted pine bark, (S+CF) sand + coconut fiber, (S+PB) sand + semi-composted pine bark and (CF+PB) coconut fiber + semi-composted pine bark.

The above table deals about the character's bring about by the media .after 90 days the further investigation is carried out dry mass weight of root, leaves and stem and then diameter of caudex, caudex length and taproot length.

The above table pointed the differences bring about by the different media.

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