# EFFECT OF SOME ROOTING HORMONES ON *Quisqualis indica* and *Plumbago capensis* STEM CUTTINGS

**By**

**NEIMA FAROUK ABDEL-HAY ELGHAZALY**
**B.Sc. Agric. Sci. (Ornamental Hort.), Fac. Agric., Cairo Univ., 2001**

**THESIS**
**Submitted in Partial Fulfillment of the Requirements for the Degree of**

**MASTER OF SCIENCE**

**In**

**Agricultural Sciences**
**(Ornamental Horticulture)**

**Department of Ornamental Horticulture**
**Faculty of Agriculture**
**Cairo University**
**EGYPT**

**2009**

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# تأثير بعض الهرمونات على تجذير العقل الساقية لنباتى *Quisqualis indica and Plumbago capensis*.

**رسالة ماجستير**
**فيالعلوم الزراعية**
**(زينة)**

مقدمة من


**نعمه فاروق عبد الحى الغزالى**

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للحصول على

**درجة الماجســتير**

**في**

**العلوم الزراعية**
**( بساتين الزيـــنة )**


**قســـــم بســاتين الزيـــــنة**
**كليـــــة الزراعـــة**
**جـامعــة القــاهرة**
**مصـــــر**


**٢٠٠٩**

**Name of Candidate:** Neima Farouk Elghazaly **Degree:** M.Sc.

**Title of Thesis:** Effect of some rooting hormones on *Quisqualis indica* and *Plumbago capensis* stem cuttings

**Supervisors:** Dr.Mohamed Mousa Hussein, Dr. Gmal El-Den Fahmy, Dr. Hend Mostafa Suefi and Dr. Salah Abd El-Azez Gomaa

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**Approval: 6 / ٦ /2009**

## ABSTRACT

Two separate experiments were carried out during two seasons of 2005/2006 and 2006/2007 at the Experimental Nursery of Ornamental Plants Research Department, Horticulture Research Institute, Giza, Egypt. So the *Quisqualis indica* cuttings were chosen for the first experiment from a mother stock of two years old. Semi-hardwood cuttings of 10-15 cm. length without leaves were dipped at their basal ends in the soluble concentrations of IBA (300, 500 and 1000 ppm), NAA (500, 1000 and 1500 ppm) and catechol (polyphenol) (300, 500 and 1000 ppm) for 12 or 24 hours. While, *Plumbago capinsis L*. cuttings were chosen for the second experiment. After preparing the cuttings they were planted in plastic pots of 15 cm. diameter containing peatmoss (5 cuttings/pot) under plastic shady tunnels, in 4 planting dates, as follows spring season (mid April), summer season (mid July), autumn season (mid October) and winter season (mid December) for the two seasons as the planting in spring season (mid April) is favorable and successful. Meanwhile, there were no rooting ability occurred in the three other planting dates. The cuttings of *Plumbago capinsis* were powdered with IBA (1600 ppm) or NAA (500 ppm) that mixed with talc powder. Whereas, IBA at 500 ppm was dissolved in 10.0$cm^3$ ethyl alcohol and completed to 100 $cm^3$ distilled water. The basal ends of cuttings were powdered or dipped in such growth regulators concentration before planting. The results revealed that, dipping the basal ends of cuttings in catechol at 1000 ppm for 24 hours resulted in a significant increase in the survival percentage of cuttings and the length of performed roots, the results of the second experiment revealed an increase the root number, branch length, plant height and leaves number resulted from treating the cuttings with IBA (1600 ppm). While, the root length, shoot number, chlorophyll a & b, phenols in leaves, carotenoids and carbohydrates content in leaves, roots and stem were increased by using IBA at 500 ppm. The treatment of NAA at 500ppm increased indoles content in either leaves or roots.

On the other hand, catechol at 300 ppm for 24 hours produced the highest number of roots at the two dipping times for rooting in both seasons, however catechol at 500 ppm for 12 or 24 hours increased significantly the number and length of branches and the length of intact seedling in the two measured times in both seasons. Chemical composition was also affected significantly by different catechol treatments, especially catechol at 1000 ppm for 12 or 24 hours which increased the total carbohydrates in roots, chlorophyll a, b and the total indoles in the intact seedlings in the two measured times (rooting time and 15 days after rooting) in both seasons as compared to control (treated with distilled water only).It could be recommended that, dipping the basal ends of semi-hardwood free leaves *Quisqualis indica* cuttings in a solution of catechol at 500 or 1000 ppm for 12 or 24 hours where as, the cuttings of *Plumbago capensis* must be powdered or dipped on IBA (1600 or 500 ppm) to optimize the propagation of the plant by cuttings.

**Key Words : 6 Indole,-3-butyric acid (IBA), 1-naphthalene acetic cid (NAA), catechol,-cuttings collecting time-dipping period.**

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# INTRODUCTION

Climbers are the plants with soft stems that grow only with a support. Climbing plants can provide some of the most stunning aspects of our landscaping. Bar walls and fences can be quickly beautified and transformed by planting fast-growing vines alongside them and providing supports for the plants to grow on. Creepers are a type of plants, which cannot stand by itself, it trails or climber. Most creepers are flowering plants (annuals, biennials or perennials). Climbers are commonly used on walls, arches, pergolas, trellises porches, arbors, and pillars. Many climbers which grow and flower for several years are perennials and they are valued because once established and trained on support, they continue to flower with little care. *Quisqualis indica* L., Madabilata or Rangoon creeper is one of these plants type.

*Quisqualis indica*, Fam: Combretaceae, common names Rangoon creeper, Burma creeper, Chinese honeysuckle (English), is an extremely beautiful shrubby vine with pale-pink to deep crimson star shaped flowers that are borne in tight clusters, covering the entire plant when in full bloom., The fragrant flowers are born in clusters and each flower has many variations of colour, depending on how old the flower is. The flower starts out white and or pink striped and turn solid pink and finally dark pink on maturity. The leaves are opposite, oblong or obovate. The flowers are short, axillary and terminal drooping racemes, white first and then rosy or scarlet, with a narrow tube. It is remarkably free from insect pests and fungous diseases, and propagation is by softwood cuttings (Bailey, 1976). *Q. indica* is used widely in traditional