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**COMPARATIVE STUDY ON THE RED PALM WEEVIL CONVENTIONAL CONTROL
MEASURES AND THE NEW ENDOTHERAPIC INJECTION METHOD**

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SUMMARY

We had been using modern technology to combat palm weevil as spraying the outside of the palms did not give satisfactory results in the elimination of the lesion as well as burning as well as congenital anomalies palms infected and heartburn and buried according to scientific bases did not succeed also, as well as the idea of injection by pipes and gave results but difficult to implement and require time and effort and cause environmental pollution and harm to workers and percentages of success is great, especially in the palms long, as well as the use of tablets Algazlam check the desired success and difficult to implement in the palm long been used machine injection modern which manufactured in Italy and scientific methods for injection talk through a working group has been field application in Egypt, Italy, Saudi Arabia and United Arab Emirates have been overcome many of the problems that we reach the best way injection and the best amount of pesticide was used many natural compounds and biomaterials in collaboration with scientists from Saudi Arabia, Egypt, Italy, America and now it administration injection process easy and simple and gave impressive results that will contribute to the elimination of this scourge in the Middle East .

Key words: endotherpic injection method, red palm weevil.

RESUME

Nous avons utilisé une technologie moderne d'injection pour combattre le charançon rouge du palmier face aux résultats insatisfaisants d'autres moyens comme : la pulvérisation, le brûlage à cœur des stipes, l'injection d'insecticides par tuyau qui donne des résultats mais présente des inconvénients tels que le temps et l'effort de mise en œuvre, la pollution de l'environnement et la dangerosité pour les manipulateurs. Le succès de l'injection est important en particulier sur de grands palmiers similaire à l'emploi de tablettes Algazlam, difficiles à appliquer sur de grands palmiers. Nous avons utilisé un matériel d'injection fabriqué en Italie et une méthodologie scientifique d'emploi à partir des éléments d'un groupe de travail qui a fait des évaluations de terrain en Egypte, Italie, Arabie Saoudite et aux Emirats Arabes Unis. Différents problèmes ont été résolus et les paramètres optimaux pour l'injection et les doses de pesticides et composés naturels ont été définis en collaborations avec des chercheurs d'Arabie Saoudite, Egypte, Italie et Amérique. Nous avons maintenant un mode d'emploi simple qui nous a donné des résultats impressionnants et qui contribuera à éliminer ce fléau du Moyen-Orient.

Mots-clés : endotherapie, injection, Charançon rouge du palmier.

INTRODUCTION

I was born among the date palm trees in Edko (Behera Governorate, Egypt), a town of the million – palm tree.

In Edko, Rashid and neighboring areas, there are more than seven –million-palm tree. I spend my childhood and youth in my father palm ranch and raised up with well established criteria about the sacred rank of the palm tree in our souls and you should protect it from any harm. In Egypt, the date palm trees are considered as one of the main sources of the national income. On the other hand, Bedouins and many other Egyptian depend totally on date palm trees as the only backbone of feeding, living, and earning money to raise and wed their sons and daughters. Therefore, since early time of my life and till now, I am eagerly interested in any thing related to the palm tree, its health, diseases, insects and productivity. I am a member in the national campaign for the prosperity of the date palm trees in Egypt; attended nearly, all the international and local conference on the palm trees, moreover, I had organized two conference in Edko about problems and solution that affect the productivity of the date palm trees.

Since the occurrence of the red palm weevil, *Rhynchophorus ferrugineus* (Olivier) and its drastic threat to date palms, *Phoenix dactylifera* in the eighties (in Gulf States) and nineties (in Egypt), an unusual attention and care had given to palm trees in the Middle East region .

The red palm weevil is considered one of the most dangerous insect pests infesting palm trees in over 35 countries in Africa, Mediterranean basin, East Asia, and part of Europe and referred to as the palm cancer (Tofailli, 2010) or the palm AIDS.

Based on the present field observations, I would like to suggest certain points, hopefully, they may contribute to the integrated strategy of controlling the “palm AIDS” the red palm weevil where it is present:

An Arabic – international center for facing any problem related to the red palm weevil.

Such center may provide financial aids for developing countries to buy the promising tree vital machine “Endo palm”.

MATERIEL AND METHODS

In 2010 has patented an injection machine (Endo palm) which proved its efficiency as a very field applications of the endotherapeutic method by means of the tree vital machine (Endo palm) on 350,000 palm trees in Italy, 50,000 palm trees in Saudi Arabia and 500 palm trees in Egypt, respectively has emphasizes the highly efficient role of such a promising injection machine as a curative or preventive tool against the palm cancer, *R. ferrugineus*.

Up to date, all injection palm trees have been recovered and appears healthy.

By co-operation with Dr. Nabawy, several compounds of his own and others of mine, recommended insecticides, natural oil (Dr. Shams), entomopathogen bacterium, originally isolated from red palm weevil (Alfazairy *et al.*, 2003), and a fungal compound (Dr. Swify), all of these compounds gave very good promising results.

DISCUSSION

The paper gives an overview on the red palm weevil conventional control measures and Nabawy endotherapeutic injection method. The red palm weevil conventional control measures can be summarized as follows:

- agricultural control and field sanitation procedures,
- pheromone – keromone traps,
- application of the external and internal quarantine regulations ,
- chemical control : by applying insecticides as :
- Periodic sprays to kill larvae, pupae and adults between folds of the full cutjered.

- Fumigation by gas pills this measure doesn't give the desired result, especially with large holes in palm which requires to be tightly closed and sometimes the employee exposed to gas fumes which are forbidden internationally to be used.
- Injection by pipes gives moderate control results in case of medium new infestations with single injury site. But in the case of multiple sites of injury or injury sites under the head of relatively short or so tall palm trees, it will be a very difficult treatment to make holes in palms. Also, this method faces a great difficulty of hammering the palms in farms with no electricity for the use of an electrical driller. Moreover injection by pipes takes a long time and the injected insecticide doesn't reach to all parts of the palm; not to mention the environmental pollution by pouring the injected insecticide outside the treated hole.

CONCLUSION

Based on all the above mentioned disadvantages of the insecticide injection by pipes, promising injection machine for palm trees to control the red palm weevil. This machine is characterized by following advantages:

- It takes a very short time to inject the required amount of the insecticide, its ability of injection ranged between 30-50 palms per day.
- Ease of use.
- No problems or difficulty to treat so tall injured palm trees and their heads.
- No loss of the injection insecticide during injection.
- No environmental pollution and provides a complete safety for workers during application.
- The injected insecticide reaches to all parts of the palm tree.
- It gives hope to farmers in the possibility of controlling the red palm weevil effectively.

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