

## DEDICATIONS

**I dedicate this humble effort,  
the fruit of my thoughts and  
study to my affectionate Parents  
and elder Sister Mrs.  
Awatif/Abdelwahid, who inspired  
me to higher ideals of life.**

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## ABSTRACT

The present study comprising of laboratory, greenhouse and field experiments was undertaken at plant pathology laboratory Plant Protection Directorate and Medicinal and Aromatic Plant Research Experimental Area (2005 – 2007), with the objectives of:

- i) Effects of extract from selected medicinal and aromatic plants on colony growth of the inciting pathogens.
- ii) Identify the most effective plant residues on disease incidence under field conditions.
- iii) Determine the effects of the residues on the grain yield of two broad bean cultivars, viz Hudeiba– 72 and Hudeiba– 93.

Extracts from, Neem (*Azadirachta indica* L.) leaves, Argel (*Solanostemma argel* L.), Fennel (*Foeniculum vulgari* L.), Basil (*Ocimum gratissimum* L.), Lemongrass (*Cymbopogon citratus* L.), Vincarosea (*Catharanthus roseus* L.) leaves and roots, at 5%, 10% and 7% combined solution, were tested for their antifungal properties against *Fusarium. Oxysporum f. sp. fabae*, *Fusarium. Solani f. sp. fabae*, (main c/o of wilt and root rot of braod bean crop), *Fusarium moniliforme*, *Fusarium equesiti* and *Macrophomina phaseolina* L. by poisoned food techniques *in vitro* at 25 ± 2°C. In general most of the extracts and essential oils used except those of Vincarosea successfully inhibited colony growth. In green house experiment, the incidence and mortality of the host were greatly reduced by the application of the six plants residues to earthen pots (30cm i.d.) filled with two kind of soils (natural and sterilized) for both broad bean cultivars

(H. 72 & H. 93), with best control in case of the sterilized soil along with V<sub>1</sub> (H. 72) as compare to the control. On the other hand all the residues incorporated into soil generally reduced the disease incidence. The maximum reduction in disease incidence was obtained when Argel, Fennel and Fungicide metalaxyl (Ridomil) were applied separately to the soil in both cultivars (Hudaiba 93 & Hudaiba 72) in the two seasons.

The greatest increase in grain yield was obtained in soils supplied with Argel, Fennel, Basil, and Lemongrass residues. Maximum yield of 2.70 kg/plot (3.5 × 4m) was obtained when Argel residue was used.

## بسم الله الرحمن الرحيم

### ملخص الأطروحة

أجريت الدراسة الحالية والتي تحتوي على تجارب معملية وفي بيت محمي وحقلية بمعامل أمراض النبات بالإدارة العامة لوقاية النبات والمزرعة الإختبارية لمعهد أبحاث النباتات الطبية والعطرية شمبات (2005 – 2007م) للتحقق من الأهداف التالية (أ) مدى تأثير مستخلصات النباتات الطبية والعطرية في تثبيط نمو الفطريات المعنية في المعمل (ب) مدى تأثير بقايا ومخلفات هذه النباتات على كثافة وإنتشار المرض في الحقل (ج) مدى تأثير هذه النباتات في زيادة إنتاجية المحصول.

المستخلصات التي تم استخلاصها من أوراق النيم (أزيدراختا إندিকা)، نبات الحرجل (سالونستيرما أرجيل)، الشمر (فونيكليوم فلاكارس)، الريحان القرنفل (أوسم قراتيسم)، حشيشة الليمون (سايمبوكون ستراتس)، و أوراق وجذور نبات الونكا (كاتراننتس روسيس). بتركيز مختلفة (5%، 7%، 10%) قد تم اختبار فعاليتها وتأثيرها المضاد لنمو الفطريات المختبرة مثل الفيوزاريوم وأوكسيسبورم النوع فابي، فيوزيرم سولاني النوع فابي (المسببان الرئيسيان لمرض الذبول وتعفن الجذور في الفول المصري)، فيوزيوروم مونيليفورم، فيوزيريوم كوزتي و مكاروفومنا فتزولينا في المعمل. معظم هذه المستخلصات والزيوت الفعالة قامت بتثبيط نمو الفطريات بكفاءة عالية ما عدا مستخلصات نبات الونكا التي كانت سميتها متدنية في تجربة البيت المحمي فقد وجد أن هناك انخفاضاً ملحوظاً في معدل الإصابة بالمرض وتداعي وموت النبات المعني وذلك عندما تم مزج التربة الطبيعية والمعقمة بإجزاء النباتات الطبية والعطرية المستخدمة كمعالجات كل على حدا في الأواني قطرها الداخلي (30 سم) المعدة لهذه التجربة، ولقد وجد أن أفضل النتائج شهدت في المعاملات في التربة المعقمة عند زراعتها بالنوع الأول من الفول المصري (حديبية 72) V<sub>1</sub>. إن غالبية المترديات وبقايا النباتات الطبية والعطرية المذكورة آنفاً عندما تمت حرارتها وخلطها في تربة الحقل قللت من كثافة المرض، كما أن معدل الانخفاض الأكبر وجد في الأحواض التي تمت معاملتها بالحرجل والشمر والمبيد الفطري ميتالاكسيل (ردميل) كل على حدا في كلا الصنفين من الفول المصري (حديبية 72، حديبية 93).

أعلى ارتفاع لإنتاجية المحصول وجد في الأحواض التي تم خلطها بأجزاء نبات  
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