

**DEDICATION**

**:To my  
Mother  
Father  
Brothers  
Sisters  
With all my  
love**

## **ACKNOWLEDGEMENTS**

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## ABSTRACT

Studies were conducted to evaluate the resistance of chickpea genotypes to wilt/root-rots, identify the causal organisms associated with these diseases and determine the optimum temperature for the growth of the causal organisms

Out of the forty chickpea genotypes screened for resistance to wilt/root-rots diseases in the sick-plot at Shambat Research Station Farm in season 2007/08, thirty five were resistant, while the other five genotypes were moderately susceptible. The incidence of wilt/root-rots diseases in the different rows that were sown with the chickpea cv. Shendi as a repeated susceptible check after every two test entries ranged between 5% and 93%, indicating the non-uniformity of the disease in the sick-plot. Due to the non-uniformity of the disease in the sick-plot, the resistance of the thirty five chickpea genotypes needs to be verified in a uniformly infested sick-plot or in artificially inoculated pots

The fungal pathogens, *Fusarium oxysporum* f. sp. *ciceris* and *Rhizoctonia bataticola*, the casual agents of Fusarium wilt and dry root-rot of chickpea, respectively were consistently isolated from wilt/root-rots affected plants

The results of the effects of the tested temperature treatments (20, 25, 30, 35, 40°C) on the growth of the identified wilt/root-rots fungi showed that *F. oxysporum* f. sp. *ciceris* was unable to grow at 35°C and 40°C, while *R. bataticola* was able to grow at all tested temperatures. The highest growth of *F. oxysporum* f. sp. *ciceris* and *R. bataticola* was observed at 25°C and 30°C, respectively

## ملخص الأطروحة

أجريت دراسات لتقييم مقاومة أربعين طرزاً وراثياً من الحمص لأمراض الذبول وتعفن الجذور وتعريف الكائنات المسببة المصاحبة لهذه الأمراض وتحديد درجة الحرارة الأنسب لنمو هذه الكائنات.

من الأربعين طرزاً وراثياً من الحمص التي تم تقييمها لمقاومة أمراض الذبول وتعفن الجذور في حقل ملوث بالمسببين المرضيين المعنيين بمزرعة محطة بحوث شمبات في موسم 2007/08، أظهر 35 طرزاً مقاومة للمرض، بينما أظهرت الخمسة الأخرى حساسية متوسطة للمرض. ولقد كانت نسبة حدوث المرض في الخطوط المختلفة لصنف الحمص شندي المزروع بصورة متكررة كشاهد حساس للمرض بعد كل صنفين تم اختبارهما تتراوح بين 5% و 93% مما يشير إلي عدم تجانس المرض في الحقل الموبوء. نسبة لعدم تجانس المرض في الحقل الموبوء فإن مقاومة الخمسة وثلاثون طرزاً وراثياً التي تم التعرف عليها تحتاج إلي تأكيد في حقل موبوء متجانس الإصابة أو في أصص تمت عدواها إصطناعياً.

الفطريات الممرضة *Rhizoctonia* و *Fusarium oxysporum* f. sp. *ciceris* و *bataticola* المسببة لمرض الذبول الفيوزارمي وتعفن الجذور الجاف في الحمص، على التوالي تم عزلهما بصورة منتظمة من النباتات المتأثرة بأمراض الذبول وتعفن الجذور. أظهرت نتائج دراسة تأثير معاملات الحرارة التي تم اختبارها (40°، 35، 30، 25، 20) على نمو الفطريات المسببة لأمراض الذبول وتعفن الجذور عدم تمكن فطر *Fusarium oxysporum* f. sp. *ciceris* من النمو عند درجات الحرارة 35° C و 40° C، بينما نما فطر *Rhizoctonia bataticola* علي كل درجات الحرارة التي تم اختبارها. تلاحظ أن أعلي نمو للفطر *Fusarium oxysporum* f. sp. *ciceris* و الفطر *Rhizoctonia bataticola* كان عند درجة الحرارة 25° C و 30° C، على التوالي.

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