

SUMMARY

Wheat (*Triticum aestivum* L.) is liable to the attack of many diseases in general and to stripe rust in particular. This may led to the induction of wheat production. The dynamic nature of the causal agents led to the induce of considerable losses especially when it tends to the side of virulence.

The main results of the present investigation could be summarized in the following results:

1. A total of 22 physiologic races of stripe rust (*Puccinia striiformis* W.) were identified through two successive seasons i.e. 2002/2003 and 2003/2004. These races were namely: OED, 4E16, 4E148, 6E24, 66E182, 70E20, 70E134, 130E187, 198E148 and E198E150; 0E0, 4E0, 4E2, 6E12, 6E142, 6E158, 64E6, 68E2, 70E154, 134E18, 148E159, 198E182 and 206E158 in respect.
2. The obtained results gave evidence to the distinction of Yr's i.e. during the two seasons since they couldn't be attacked by either of the identified races. However, races of the two seasons were virulent to Yr's.
3. Gene postulation studies resulted in the probability of inclusion of Yr's 9, Su, 7, (3); cv, (3); cv; a, Su, cv; Yr (7); 9, Su, cv, Cv and 9, Su, 7, cv within cultivars Sakha 8, -93, -94, Giza 160, Giza 168, Giza 170, Gem.9, Sids-1 during 2002/03, respectively. On the other hand, common Yr's may be presented between (Sakha 94 and Giza 160), (Sakha 94 and Gem.7), Giza 170 and (Sakha 94, Giza 160) and (Sakha 8 and Sids 4). Likewise, 6 Yrs probably present between Sakha 8 and each of Sakha 93, -94, Giza 160, -163, -168 and -170), between Sakha 93, Giza 163, -168), Sakha 94, Giza 168, between Giza 16, -168, between Sids and each of (Giza 163, Giza 168).
4. Regarding varietal evaluation, the obtained results indicated that all of the tested entries showed susceptibility at seedling stage during the two seasons. The same trend was observed during the adult stage with the exception of (Sakha 61, Sakha 94 and Gem-9) and (Giza 168, Gem.-7) which proved to have 0 and TrMS types of infection during the two seasons, respectively.
5. Fungicidal evaluation gave evidence to the high efficacy of Eminent and Caramba when applied once or twice. The reverse was recorded with Fungshow during the two seasons.
6. As regard to the evaluation of 4 plant extracts, the obtained results showed significant differences between either of the tested extracts and the fungicide (Eminent). However, low level of significance was recorded within extracts and between them and the control treatment. The effect of extracts observable on prolonging the incubation period as applied after or before inoculation and in seedling or adult stage. Eucalyptus and Salix followed by Khella (*Ami majus*) extracts were noticeable in this regard.
7. Gross analysis of either infected or protected wheat seeds showed significant indication to the decrease of moisture content, fats and carbohydrates and a significant increase protein, ash and fiber contents. It could be concluded that the causal agent (*P. Striiformis*) is considered to be high consumer for moisture, sugars of carbohydrates and fats.
8. The finger print studies gave evidence to the close relationship between four physiological races of the causal agent of stripe rust, from the genetic point of view via the application of RAPD technique by using two primers and 4 physiologic races.

المستخلص العربي

دراسات فيسيولوجية على مرض الصدأ الأصفر بالقمح في مصر

يمكن تلخيص النتائج التي تحصل عليها في النقاط التالية:-

- ١- تم تعريف ١٠ سلالات فيسيولوجية سائدة للفظر *Puccinia striiformis*.
- ٢- أظهرت دراسات التوقع الجيني أن الأصناف موضع الاختبار كانت تحتوي على الجينات 9 ، SU ، 7 ، CV ، (3) ، CV ، 9 ، SU ، CV ، (7) ، 9 ، CV ، SU ، 9 ، SU ، 7 ، CV ، داخل الأصناف الآتية سخا ٨ ، سخا ٩٣ ، سخا ٩٤ ، جيزة ١٦٠ ، جيزة ١٦٨ ، جيزة ١٧٠ ، جيزة ١٧٠ ، جيزة ١٩ ، سلس ١ في موسم ٢٠٠٢/٢٠٠٣. ومن ناحية أخرى فإن الجينات المشتركة والمحملة وجودها كانت بتأكيد أكثر بين سخا ٩٤ ، جيزة ١٦٠ ، سخا ٩٤ ، وجيزة ٩ ، وجيزة ١٧٠ وكل من سخا ٩٤ ، جيزة ١٦٠ وأخيراً سخا ٨ وسلس ٤.
- ٣- تم تقييم الأصناف المصرية (٢٥ صنف تجارى) في طور البادرة على مدار الموسمين ٢٠٠٣/٢٠٠٤ ، ٢٠٠٤/٢٠٠٥ وجميعها قابلة للإصابة. فحين في طور البلوغ أخذت بعض الأصناف (0) Type وأصناف أخرى متوسطة الحساسية للإصابة، أما بقية الأصناف أخذت (s) Type .
- ٤- أظهرت النتائج انخفاض في المحصول من حيث وزن الألف حبة و وزن حجم ثابت.
- ٥- تم تقييم ٨ مبيدات فطرية وهي سومى أيت ٥% وسومى أيت ٢% ، ائمي وتلت وأمنتت وبانش وفانجشو وكارامبا ، وأظهرت النتائج أن أفضل هذه المبيدات كفاءة هي مبيد الأمنتت والكارامبا وكان أقلهم كفاءة مبيد فانجشو.
- ٦- تم استخدام المستخلصات النباتية في مكافحة مرض الصدأ الأصفر وهى الصفصاف - الكافور - البذروميا - الخلة). وكان رشها قبل التلقيح أفضل من بعد التلقيح بالمرض.
- ٧- أوضحت الدراسة الخاصة بالمكونات الكيماوية للحبوب أن الأصناف التي لم تتعرض للعدوى بالصدأ الأصفر قد احتفظت بحبوبها بأعلى محتوى رطوبى ودهون و كربوهيدرات وقد لوحظ العكس في حبوب النباتات المعدية كما النتائج أن حبوب النباتات المعدية أعلى محتوى رماد ألياف وبروتين.
- ٨- أظهرت دراسات البصمة الوراثية لتحديد الاختلاف في مادة الوراثة (دى أن أيه) وتحديد مدى القرابة والاختلاف بين ٤ سلالات من الصدأ الأصفر بطريقة RAPD حيث تم استخدام ستة بادئات اثنان فقط أعطت نتيجة وهما

1- 6d (GGTGC GGAA)-3

2- 6d (GTAGACCCGT)-3

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