

In this article, alterations in genetic structure of stem rust on wheat during two growing seasons were compared in various areas of Egypt. Two synonym names of pathogen are referred in the text: *Puccinia graminis* Pers. f. *sp. tritici* and *Puccinia graminis* f. *sp. tritici* Eriks. & E. Henn!

Title: covers the content of article, but the typo has to be corrected.

Abstract: confuse. Redit!

Keywords: Wheat, Stem rust, Infection type, Physiologic races, Race groups, Resistance genes

Introduction: The introduction presents the scope of the manuscript in relation to this filed,

Materials and Methods: In the Abstract and Table 4 data on two growing seasons are given! Make the correction, please!

Results: The data is presented in an easily visualized and understandable manner, however, the errors have to be corrected.

The submitted manuscript needs improvement in English. The use of term “*On the other hand*” is too frequent! Revise this, please. For proposals see the attached file!

In all, this article merits publication after correction of syntactic and technical errors.

Page	Row	Error	Correct (<i>Comments</i>)
TITLE			
1	5	Virulance	Virulence
ABSTRACT			
1	9	Historically, stem rust <i>Puccinia graminis</i> f. <i>sp. tritici</i> is one of the most serious wheat diseases in Egypt. Stem rust samples were collected from different governorates of Egypt during two season 2008/2009 and 2009/2010 growing seasons the single pustule method of isolation was followed for each samples rust data were recorded	Stem rust (<i>Puccinia graminis</i> f. <i>sp. tritici</i>) samples were collected from different areas of Egypt during two season 2008/2009 and 2009/2010 growing seasons. The single pustule method of isolation was followed, and the type of infection was recorded as well for each rust samples.
1	18	and the identification of physiologic races of wheat stem rust fungus. Showed the presence of forty fifth and fifty fifth race groups was identified. race identification the procedure gave evidence to the inclusion of race groups i.e. TT--- and TK-- the most frequent ones which gives (11.59%) and (10.14%) respectively, in 2008/2009. However in season 2009/2010 race groups TT--- was the most frequent one (21.50 %),	The identification of physiologic races revealed the presence of forty fifth and fifty fifth race groups of stem rust fungus. The race identification evinced the presence of race groups TT--- and TK--- as well, which run to 11.59 and 10.14 percents of samples in 2008/2009, respectively. However in season 2009/2010 race groups TT-- was the most frequent one (21.50 %),
Keywords			
1	26	Infection type, Physiologic races, Identification, Race groups, Postulation, Resistance genes.	Wheat, Stem rust, Infection type, Physiologic races, Race groups, Resistance genes

			(Keywords should reflect the most essential items of the article!)
INTRODUCTION			28
1	32	has threatened	constrains
1	33	designated this strain as race TTKS using the letter code stem rust nomenclature system (5).	using the letter code of stem rust nomenclature system it was designated as TTKS race (5).
1	34	5). A fifth set of differential	5). Subsequently a fifth set of differential
1	36	Four other variants of the Ug99	Recently, four other variants of the Ug99
1	39	race. Also, Ug99	race. Moreover, Ug99
1	42	Among 56 designated and a few undesignated	Among 56 designated and few undesignated
1	48	However, this problem has been partially solved	Nevertheless, this problem has been partially solved
1	50	were developed	were selected
1	51	1950-1990. All of these cultivars characterized by their seedling	1950-1990, which can be characterized by their seedling
2	3	nomenclature for <i>P. g. f. sp. tritici</i> permits	nomenclature for stem rust of wheat permits
2	8	wheat varieties in Egypt.	wheat varieties cultivated in Egypt.
MATERIALS AND METHODS			9
2	10	The collected sample from most wheat field and Egyptian wheat trap nursery in annual survey Governorates of Egypt, included wheat stems having the symptoms of stem rust disease caused by <i>Puccinia graminis Pers. f. sp. tritici</i> were used in the identification of physiologic races or pathotypes in Egypt during 2008/2009 growing seasons.	Wheat stem samples with symptoms of stem rust disease caused by <i>Puccinia graminis Pers. f. sp. tritici</i> collected from numerous wheat fields and Egyptian wheat trap nursery during annual survey were used for the identification of physiologic races and pathotypes in Egypt during 2008/2009 and 2009/2010 growing seasons. (In the Abstract and Table 4 data on two growing seasons are given!)
2	13	The collected samples (rusted stems) were kept in glassine envelopes (8 x 15 cm). Rest samples, were left at room temperature for 24 hours to remove the humidity in the samples. After that the samples were preserved in desiccator in fridge till usage.	The collected samples were kept in glassine envelopes (8 x 15 cm). The stem pieces with rust were left at room temperature for 24 hours to remove the excess of humidity. The desiccated samples were preserved in fridge till usage.
2	16	The infected specimens were transferred on the highly susceptible wheat cultivar <i>i.e.</i> Morocco. The method of inoculation was carried out as described by (15).	The rust of specimens was transferred on the highly susceptible wheat cultivar <i>i.e.</i> Morocco following the method proposed by USDA-ARS(15).
2	17	old seedlings were sprayed with atomizer in the inoculation chambers with water than inoculated by shaking and brushing rusted materials over the plants and sprayed gently again with water in order to induce "dew" on the plant. Finally, the inoculated plants were kept in damp chambers for 24 hours to allow the rust spore to germinate and cause infection.	old seedlings were moistened with atomizer in the inoculation chambers than inoculated by shaking and brushing rusted materials over the plants and sprayed gently again with water in order to induce "dew" on the plants, then the pots were kept in damp chambers for 24 hours to allow the rust spore to germinate and cause infection.
2	23	pastures were isolated separately	pastures were separately isolated
2	24	seedlings for obtained	seedlings to obtain

2	26	according to adopted by (5).	according to USDA-ARS prescriptions (5).
		An additional differential set consisting of lines <i>Sr</i> 9a, 9d, 10 and <i>Tmp</i> was added to Table (1) according to adopted by (5). An additional differential set consisting of lines <i>Sr</i> :s 24, 31, 38 and <i>McN</i> was added to Table (1) according to adopted by (6).	Additional differential sets consisting of lines <i>Sr</i> 9a, 9d, 10 and <i>Tmp</i> according to USDA-ARS (5) as well as lines <i>Sr</i> :s 24, 31, 38 and <i>McN</i> according to Jin et al. (6) were added to Table 1.
2	28		
2	last		Space needed after the table!
RESULTS			10
3	12	Henn. Obtained	Henn. obtained
3	13	based on infection types on the North American stem rust differential series used for race identification	using the North American stem rust differential series for race identification.
3	15	Out of 69 isolates, 45 race groups were identified. during The first growing season(2008/09)The two race groups TT--- and TK--- were the most frequent (11.59%) and (10.14%), respectively out of the total identified races in 2008/09 season, followed by race groups TR--- and KT--- (5.79 %) and (4.35 %), respectively.	The presence of 45 race groups was established in 69 isolates of the first growing season (2008/09), where the most frequent race groups were TT--- and TK--- (11.59 and 10.14 %, respectively) followed by TR--- and KT--- (5.79 and 4.35 %, respectively).
3	18	On the other hand, the frequency of 6 race groups BB---, BH---, DK---, PF---, TF--- and TS---were (2.89 % each), whereas, the rest of race groups represented (1.44%, each) Table (2).	On the other hand, the frequency of race groups BB---, BH---, DK---, PF---, TF--- and TS--- was 2.89 % of each, whereas, the remaining race groups were represented at 1.44% of each (Table 2).
3	21	Out of 93 isolates, 55 race groups were identified. during the second growing season (2009/10) the race group TT--- (21.50 %) was the most frequent. While race groups DH---, TK--- and TS--- occupied the second rank (4.30 %, each). Followed by the race group PT--- (3.22 %). On the other hand, race groups BB---, BK---, DK---, DT---, KT---, PS---, SR--- and TP--- revealed (2.15 % each). The rest of race groups represented (each, 1.07 %) of the total isolates. Table (3)	During the second growing season (2009/10) 55 race groups were identified on 93 isolates, and TT--- (21.50 %) was the most frequent among them. The race groups DH---, TK--- and TS--- occupied the second rank (4.30 %, each), followed by the race group PT--- (3.22 %), meanwhile the race groups BB---, BK---, DK---, DT---, KT---, PS---, SR--- and TP--- revealed at 2.15 % of each. Each remaining race groups was represented in 1.07 % (Table 3).
3	53	<i>Sr</i> 26+9g were	<i>Sr</i> 26+9g were
4	37	respectively)(Table	respectively) (Table
4	39	Table (4)	Table 4
4	44	respectively. On the other hand, virulence	respectively. The virulence
4	47	Generally the level of efficacy was	<i>The level of efficacy of what?</i>
4	50	<i>Sr</i> 5 (71.27). On the other hand, <i>Sr</i> :s genes 30	<i>Sr</i> 5 (71.27). Meanwhile, <i>Sr</i> :s genes 30
4	55	Deference	Difference
5	1	gene (s) for resistance	gene(s) for resistance

5	16	resistant genes (s).	resistant genes(s).
6	53	(Table, 8).	(Table 8).
6	57	(10.00% each)	(10.00% each).
DISCUSSION			38
7	39	One of the most important steps in breeding programs for rust resistance in wheat is the identification of the prevailing physiological races in the region. Such program will be successful if all physiological isolates of the disease are included (19, 20).	One of the most important steps in control programs against rust disease of wheat is both monitoring and identification of physiological races in the region and cultivating varieties resistant to prevailing races (19, 20). Such program will be successful if the selection of varieties resistant to emerging races is included into the breeding wheat variety adopted to local conditions.
7	42	The identification of virulence phenotypes has been a very important part of the program to breed resistance host cultivar as well as in study in regional disease spread and the evolution of virulence in the pathogen (21).	The identification of virulent phenotypes has been a very important part of the program to breed resistant host cultivars. The study of both alterations in virulence and regional spread of pathogen are prerequisites of combatting yield losses (21).
7	44	The evolutionary change that occurs in pathogen population such as <i>P g. f. sp. tiritici</i> will necessitate changes in differential host, to maintain relevancy of race determination. Experience has indicated that a review of the system used is required at least every 10 yr. The system is designed is that a race designation can be assigned to virulence combinations directly, eliminating the need to contact a central source before publishing data.	The evolutionary changes that occur in population of pathogen such as <i>P g. f. sp. tiritici</i> necessitate changes in differential host to maintain relevancy of race determination as well. Experience has indicated that a review of the test sortiment used is required at least every 10 years. The system for race determination is designed to assign the virulence combinations directly, i.e., eliminate the need to contact with a central source before publishing data.
8	8	should be reasonable reliable	should be reliable
8	12	A comparison of the races identified	Comparing the composition of rust population identified
8	18	from countries such as	from wheat cultivating areas of
8	28	to the rapidly development	to the rapid appearance (<i>The new infective race might be imported of other geographic areas as well and not developing locally.</i>)
8	31	genes, the obtained results gave	genes, our results gave
8	last	Egyptian wheat cvs	Egyptian wheat cultivars.