

Determination of Physiological Races of *Puccinia striiformis* f.sp. *tritici* in Iran, 2018-2020



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Introduction:

- Wheat is cultivated in more than 6 million h. with average 3 t/h in Iran.
- Stripe (Yellow) rust of wheat is an important disease in some wheat growing regions of Iran.
- The use of resistant cultivars is the most effective, economic and environmentally safe method to control of stripe rust disease.
- Race analyses of pathogen for screening of germplasm is essential.

Materials & Methods:

- Sixty seven isolates were collected from different parts of Iran during 2018-2020.
- Infection types were assessed on a 0-9 scale 16 and 18 days after inoculation using a scale similar to that described by McNeal *et al.* (1971).
- Infection types (ITs) 7 to 9 were regarded as virulent (susceptible) and less than 7 are avirulent.

Table 1: Standard Wheat Lines of *Puccinia striiformis* f.sp. *tritici*

NO.	Variety/Line	Genes
1	Chinese 166	Yr1
2	Lee	Yr7
3	Heines Kuben	Yr2
4	Vilmorin 25	Yr5
5	Mies	Yr10
6	Strals Dinkopf	Yr5D
7	Sonus 90Omur	Yr5D
8	Chenot	Yr2, Yr6+
9	Taliman spillo var. album	Yr5
10	Hibrid 46	Yr4
11	Reichenberg 42	Yr7+
12	Heines Peln	Yr2, Yr6+
13	Nord Desprez	Yr10D
14	Compár.	Yr8
15	Carsten V	Yr17
16	Spalding Pacific	Yr5P
17	Heines VII	Yr2+
18	Awelet R'	Yr4
19	Kabannon	Yr2
20	Talent	Yr17+
21	Yr5S' Awelet S	Yr5
22	Hagenot	Yr2S
23	Selkirk	Yr27
24	Federation 4Karkaz	Yr9
25	Federation	
26	Yr10' Awelet S'	Yr1
27	Yr5P' Awelet S'	Yr5
28	Yr6P' Awelet S'	Yr6
29	Yr7P' Awelet S'	Yr7
30	Yr8P' Awelet S'	Yr8
31	Yr9P' Awelet S'	Yr9
32	Yr10P' Awelet S'	Yr10
33	Yr15P' Awelet S'	Yr15
34	Yr17P' Awelet S'	Yr17
35	Yr18P' Awelet S'	Yr18 (APR)
36	Yr24P' Awelet S'	Yr24
37	Yr26P' Awelet S'	Yr26
38	Yr27P' Awelet S'	Yr27
39	Yr32P' Awelet S'	Yr32
40	Yr50P' Awelet S'	Yr50
	Bolani (susceptible)	

Results:

- Pathotypes 238E182A+, Yr27 (from Brojerd) and 247E235A+, Yr27+ (from Saraks 2-3) were more aggressive during this study.
- Pathotype 7E0A-(Arak) and 6E6A+ (Bostanabad) were less aggressive. Plants with gene/s *Yr5*, *Yr15* and *Yr24* were resistant to all pathotypes.
- Virulence on plant with gene/s *Yr2*, *Yr6*, *Yr7*, *Yr9*, *Yr25*, *Yr27*, *Yr5D* and *YrA* were more common, which are detected in greenhouse condition.

