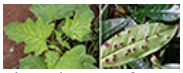

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DISEASE NOTES

Detection of Wheat Stem Rust Races TTHSK and PTKTK in the Ug99 Race Group in Kenya in 2014

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ABSTRACT

Wheat stem rust, caused by *Puccinia graminis* f. sp. *tritici*, causes severe losses in wheat production under epidemic conditions. The detection of isolate Ug99 in east Africa (Pretorius et al. 2000) has raised global concerns of the vulnerability of wheat to stem rust. Since initial detection, 10 variants of Ug99 have been reported across 13 countries (Patpour et al. 2015). Wheat stem rust infection was widespread in Kenya in 2014. Fifty-two samples from common wheat were collected from the Mount Kenya and North, South, and Central Rift regions and analyzed for race identity in a level-3 biocontainment laboratory in Canada. Of these samples, 41 yielded viable spores for race pathotyping. Each sample was inoculated on 8-day-old seedlings of 20 single-gene differential lines using an inoculator, incubated for 16 h in a dew chamber in the dark, and subsequently moved to a growth cabinet set at 18 ± 1°C and 16-h photoperiod. Infected plants were rated 14 days postinoculation using a 0 to 4 infection type scale. Virulence analysis using the letter-code nomenclature system (Jin et al. 2008) identified two new races in the Ug99 race group from repeated experiments. Race TTHSK was identified from samples collected at Ngorengore (South Rift) and Njoro (field 13), which differs from the original Ug99 isolate (race TTKSK) by avirulence on gene *Sr30*. Race TTHSK is similar to race TTHST, which was detected previously by Newcomb et al. (*manuscript in preparation*). Race PTKTK was identified from samples collected at Rotian and Eor-Enkitok in the South Rift region, Cheplasgei and Kaplogoi in the North Rift region, and at the technology farm in Njoro in the Central Rift region. Race PTKTK differs from race PTKSK (first identified in 2007) by additional virulence to gene *SrTmp*, or alternatively differs from race TTKTK by avirulence to gene *Sr21*. Races TTKTK and TTKTT in the Ug99 race group with virulence to gene *SrTmp* were also found in 2014 (Patpour et al. 2015; Patpour et al. 2016). Virulence to *SrTmp* was detected soon after the deployment of the variety 'Kenya Robin' (which has *SrTmp*) in 2011. This report now brings the total number of variants in the Ug99 race group to 13 and highlights the importance of stem rust surveillance and race pathotyping, particularly in Kenya and surrounding countries in eastern Africa where evolution of new stem rust virulence is frequent.

***References*:** Section: *Choose*

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Citation