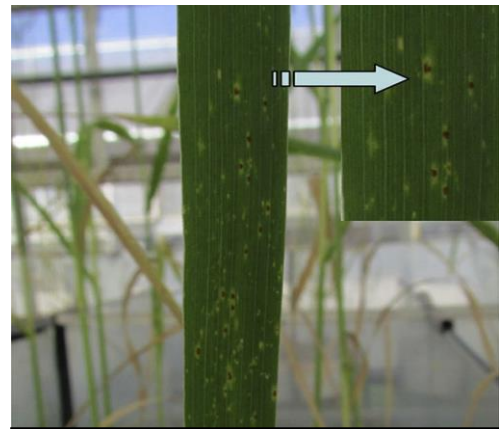


Bilateral BBSRC-Embrapa: Uncovering the genetic and functional basis of the unique leaf rust resistance in the Brazilian wheat variety Toropi

Acronym: ToropiAPR

The old Brazilian cv. Toropi expresses a unique, durable source of adult plant resistance (APR) to leaf rust (causal agent the fungal pathogen *Puccinia triticina*) that has remained effective for more than 50 years. The resistant phenotype exhibits all the characteristics of slow-rusting resistance, as seen with the known, durable resistance genes *Lr34*, *Lr46*, *Lr67* and *Lr68*. Screens with DNA markers defining these known sources of slow-rusting resistance indicates that the leaf rust APR in Toropi is unique.

With partners at Embrapa-Wheat, Passo Fundo, Brazil we are characterising the complex genetics underlying the leaf rust resistance in Toropi, and developing genetic materials that will enable us to genetically and biologically characterise the Toropi resistance.



Leaf rust infection on cv. Toropi



The researcher leading this project is Dr Camila Martini Zanella

Camila is a molecular plant biologist, with expertise in plant genetic diversity, phylogenetics and evolutionary patterns. Camila obtained a PhD in genetics and molecular biology from the Federal University of Rio Grande do Sul, Porto Alegre, Brazil. Following her PhD Camila worked as a post-doctoral researcher for two years in the Group of Genetics and Conservation of Plants at the Federal University of Rio Grande do Sul in consultation with Dr Fernanda Bered. Camila also worked as an Associate Researcher in the Botanic Department of the National Museum, Rio de Janeiro, Brazil, in collaboration with Dr Andrea Ferreira da Costa.

PhD student: Alice Casassola Thesis title “Gene expression in wheat in response to *Puccinia triticina* infection, causal agent of leaf rust.”

PhD student: Gerarda Beatriz Pinto da Silva Thesis title “Genetic mapping of Toropi wheat variety in response to leaf rust and aluminium toxicity.”

References:

A Casassola, SP Brammer, MS Chaves, JA Martinelli, F Stefanato, **LA Boyd** (2015) Changes in gene expression profiles as they relate to the adult plant leaf rust resistance in the wheat cv. Toropi. *Physiological and Molecular Plant Pathology* 89: 49-54.