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EXPLORING SECONDARY METABOLITES AND *TRITICUM* SPP. BIODIVERSITY IN RELATION TO *FUSARIUM* MYCOTOXIN ACCUMULATION AND MODIFICATION

RIGHETTI L.[1], GOZZI M.[1], PEDRAZZANI[1], BRUNI R.[1], BLANDINO M.[2], DALL'ASTA C[1*].

[1]*Department of Food and Drug, University of Parma, Viale delle Scienze 27/A, 43124 Parma, Italy.*
[2]*University of Torino, Dipartimento di Scienze Agrarie, Forestali e Alimentari, Largo Braccini 2, 10095 Grugliasco, TO, Italy.*
chiara.dallasta@unipr.it

Along with genetic approaches, metabolomic fingerprint of Triticum spp. can provide powerful opportunities for plant breeding through the identification of the chemical defence pathways activated in plants. In this framework, mapping the chemical biodiversity of Triticum spp. niche varieties in response to Fusarium infection, may offer valuable insights into the frontline machinery of plant resistance.

As already reported [1] secondary metabolites such as flavonoids and phenolic acids, have been suggested to counteract toxigenic *Fusaria* and mycotoxin accumulation in wheat, although anthocyanin have not been considered yet. However, little is known so far about the role of other phenolic compounds, i.e. anthocyanins and alkylresorcinols, both located in the outer aleurone layers and involved in the plant defence frontline.

Within the available germplasm, pigmented wheat (*Triticum aestivum* L.) are characterised by the selective location of anthocyanins in the pericarp or in the outer aleurone layers, giving the grain characteristic colours (blue, black, purple or red). Overall, the accumulation of these pigments in the outer aleurone layer is considered a recently evolved trait, resulting from environmental adaptation. Their possible relation with FHB resistance was described in barley [2, 3] and wheat [4].

We have therefore investigated the potential correlation between alkylresorcinol and anthocyanins composition in wheat and multiple Fusarium-related mycotoxins accumulation, focusing on a collection of *Triticum* spp. *niche* varieties, observed over two harvest years.