Mycokey

Integrated and innovative key actions for mycotoxin management in the food and feed chain

Lay summaries

Knowledge transfer to stakeholders

MycoKey

European Commission

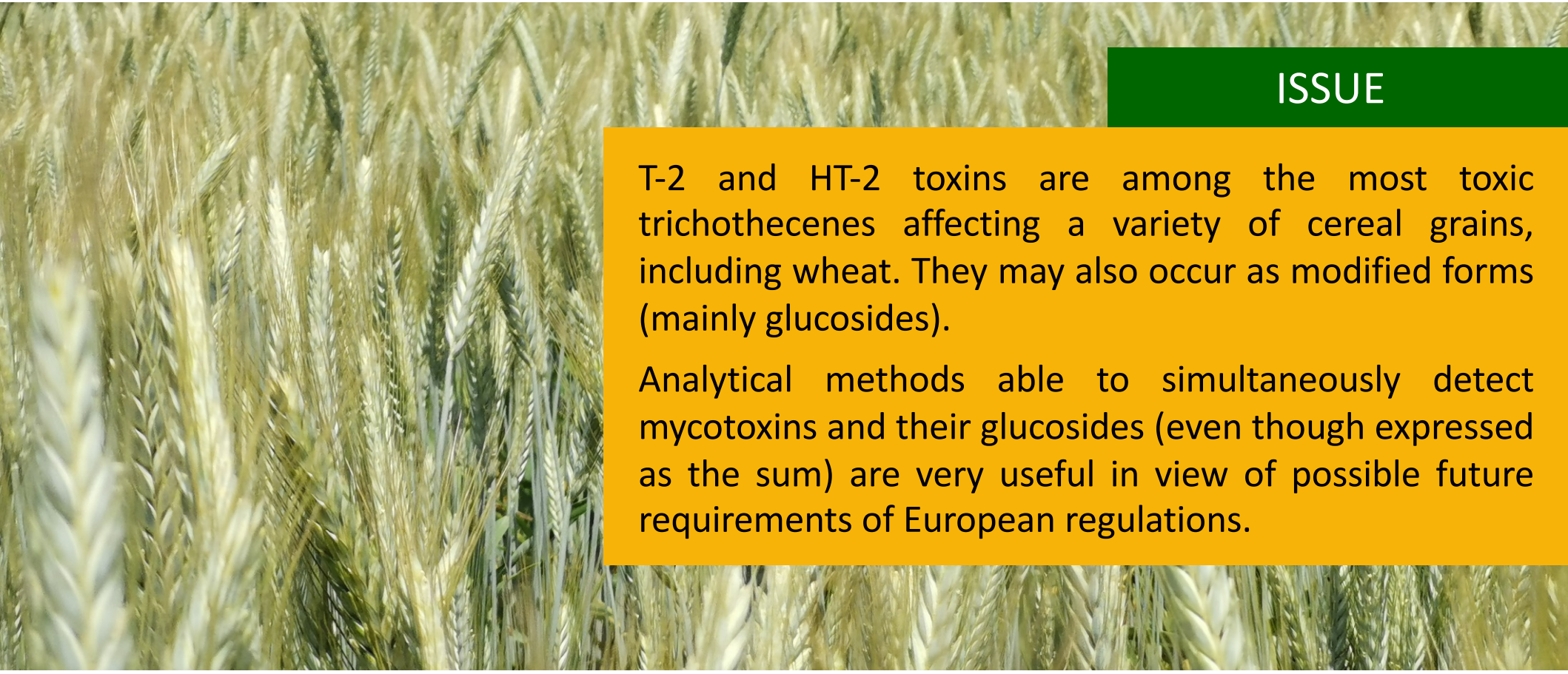
HORIZON 2020

UNIVERSITÀ CATTOLICA del Sacro Cuore

Fluorescence Polarization Immunoassay (FPIA) for the determination of T-2 and HT-2 toxins and their glucosides in wheat

Mycotoxin Monitoring

FPIA for T-2 and HT-2 toxins and modified forms in wheat



ISSUE

T-2 and HT-2 toxins are among the most toxic trichothecenes affecting a variety of cereal grains, including wheat. They may also occur as modified forms (mainly glucosides).

Analytical methods able to simultaneously detect mycotoxins and their glucosides (even though expressed as the sum) are very useful in view of possible future requirements of European regulations.

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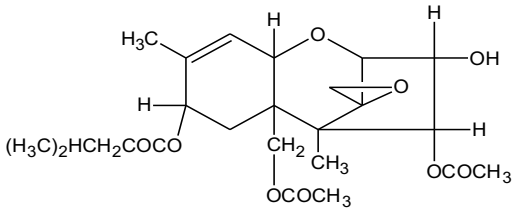
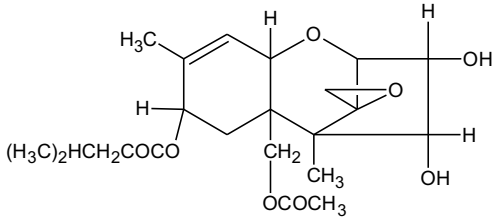
FPIA for T-2 and HT-2 toxins and modified forms in wheat



T-2 toxin (T-2)

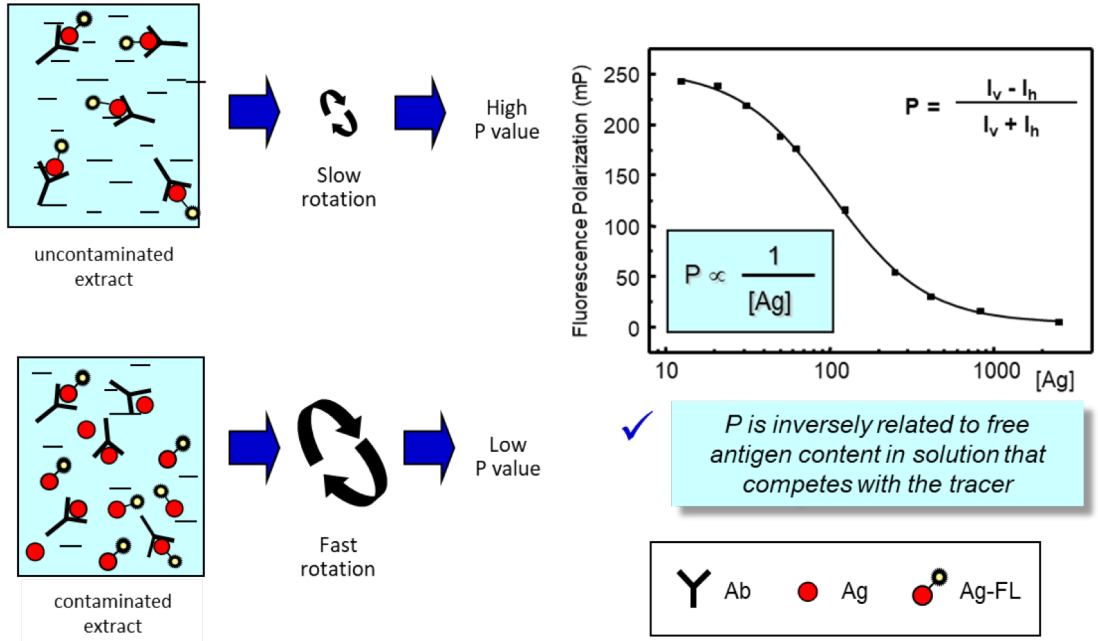


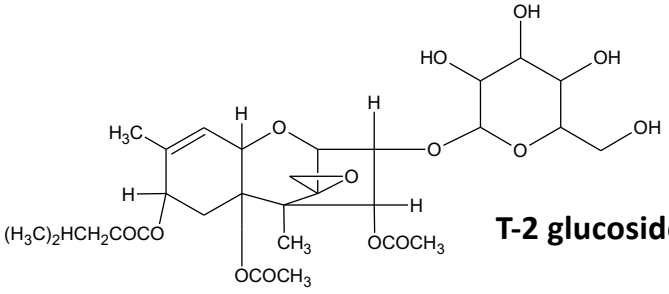
HT-2 toxin (HT-2)

APPROACH

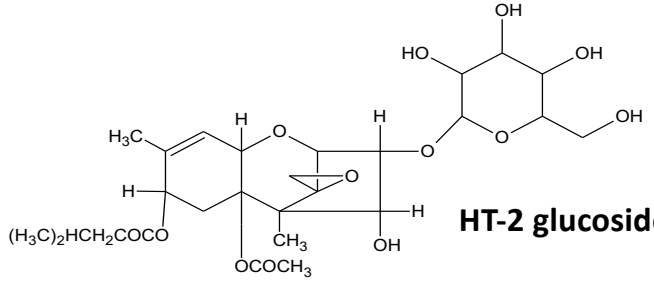
Fluorescence Polarization Immunoassay (FPIA) is a homogeneous competitive fluorescence immunoassay based on the competition in solution of free antigen (Ag) with a tracer (Ag-FL) for a specific monoclonal antibody (Ab).

An **FPIA** has been developed for the rapid and **simultaneous determination** of **T-2, HT-2, T-2G and HT-2G** (expressed as sum).





T-2 glucoside (T-2G)



HT-2 glucoside (HT-2G)

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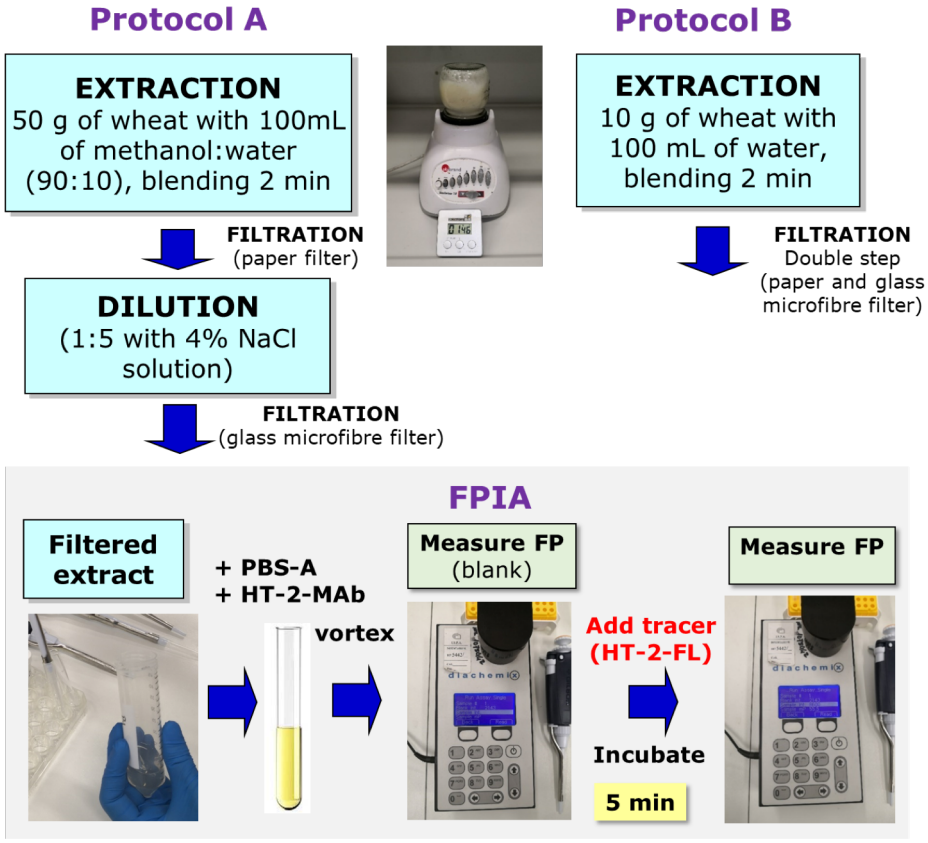
FPIA for T-2 and HT-2 toxins and modified forms in wheat

OUTCOMES

Two rapid (10-15 min) and **easy-to-use methods** using different extraction protocols, based on the use of organic (Protocol A) and non-organic (Protocol B) solvents, were developed and validated for the determination of T-2, HT-2, T-2G and HT-2G in wheat. These methods showed **analytical performances** in terms of sensitivity (LOD 10 g/kg) recovery (92–97%) and precision (RSDs 13%) **fulfilling the criteria** established by the European Union.



Lippolis V, Porricelli ACR, Mancini E, Ciasca B, Lattanzio VMT, De Girolamo A, Maragos CM, McCormick S, Li P, Logrieco AF, Pascale M, 2019. Toxins, 11, 380. DOI: 10.3390/toxins11070380

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