

RAPID AND SENSITIVE DON MYCOTOXIN ASSAY COMPARISON ON WHEAT, DURUM WHEAT AND CORN

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Introduction

During the last year the performance of *Celer* DON, the new ELISA kit for the quantitative determination of deoxynivalenol (DON) in cereals and feed produced by Tecna, was compared to other ELISA kits for DON available on the market.

Experimental

Binding assays: the following commercial kits were compared: B kit) for DON (96 or 48 det.), R kit) for DON (96 or 48 det.), N kit) for DON (48 det.) and *Celer* DON Quantitative DON test, supplied by Tecna S.r.l. (code MD100, 96 det. - MD101, 48 det.). Sample preparation and assays were performed according to the procedures described in each kit insert.

Results

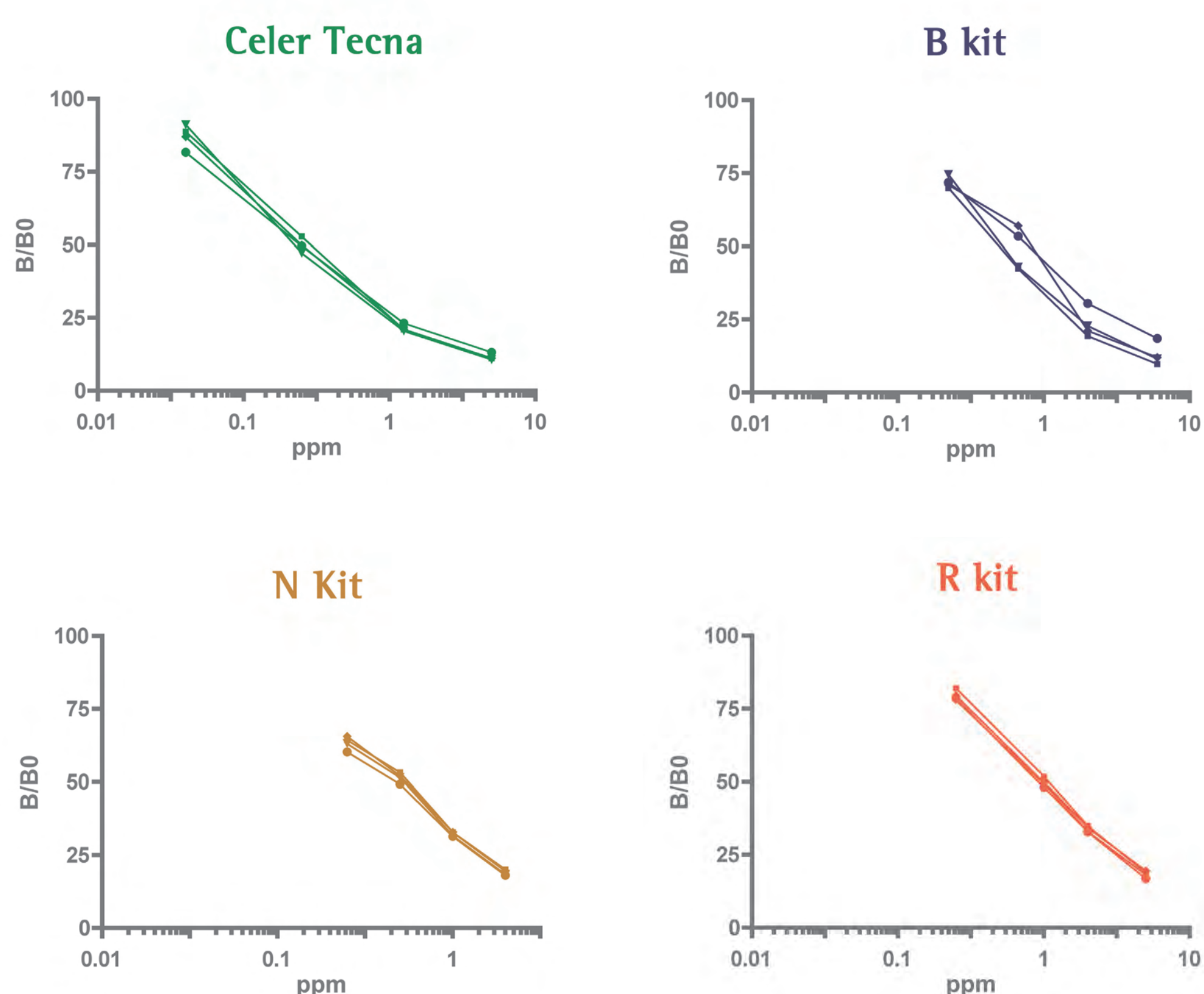
Test materials

Different reference materials were determined for corn: reference blank samples (code BCR-377), certified incurred Biopure BRM3001 (0.474 ± 0.030 ppm) and incurred Progetto Trieste MA1041-1 (1.400 ± 0.310 ppm).

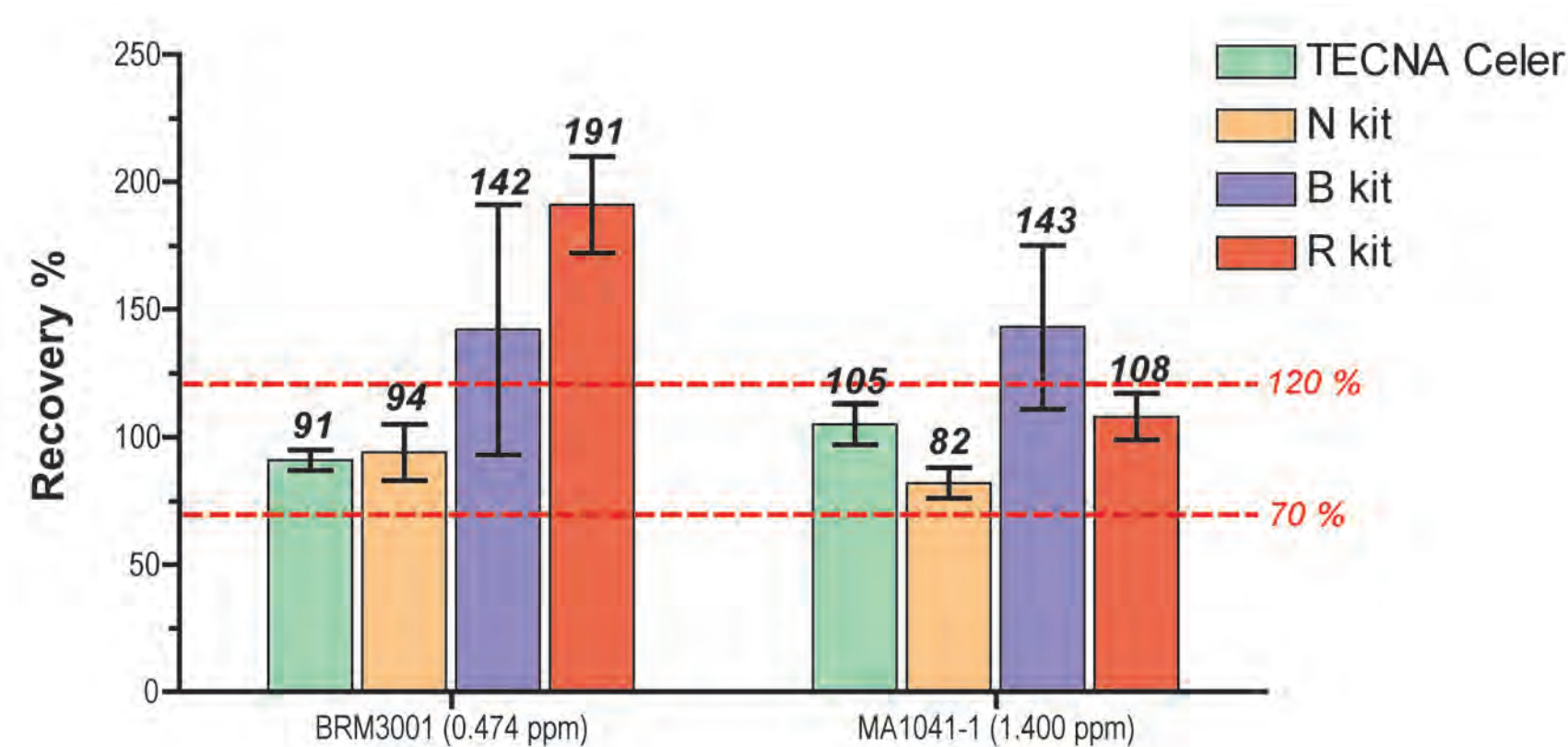
For wheat: certified material, Biopure BRM003004 (1.062 ± 0.110 ppm) and an incurred wheat, Bipea 2-2531-0002 (4.786 ± 1.089 ppm) and for durum wheat: blank samples (< 0.02 ppm, HPLC analysis) and three incurred samples at three different contamination levels (0.4, 1 and 3 ppm, HPLC).

Calibration curves

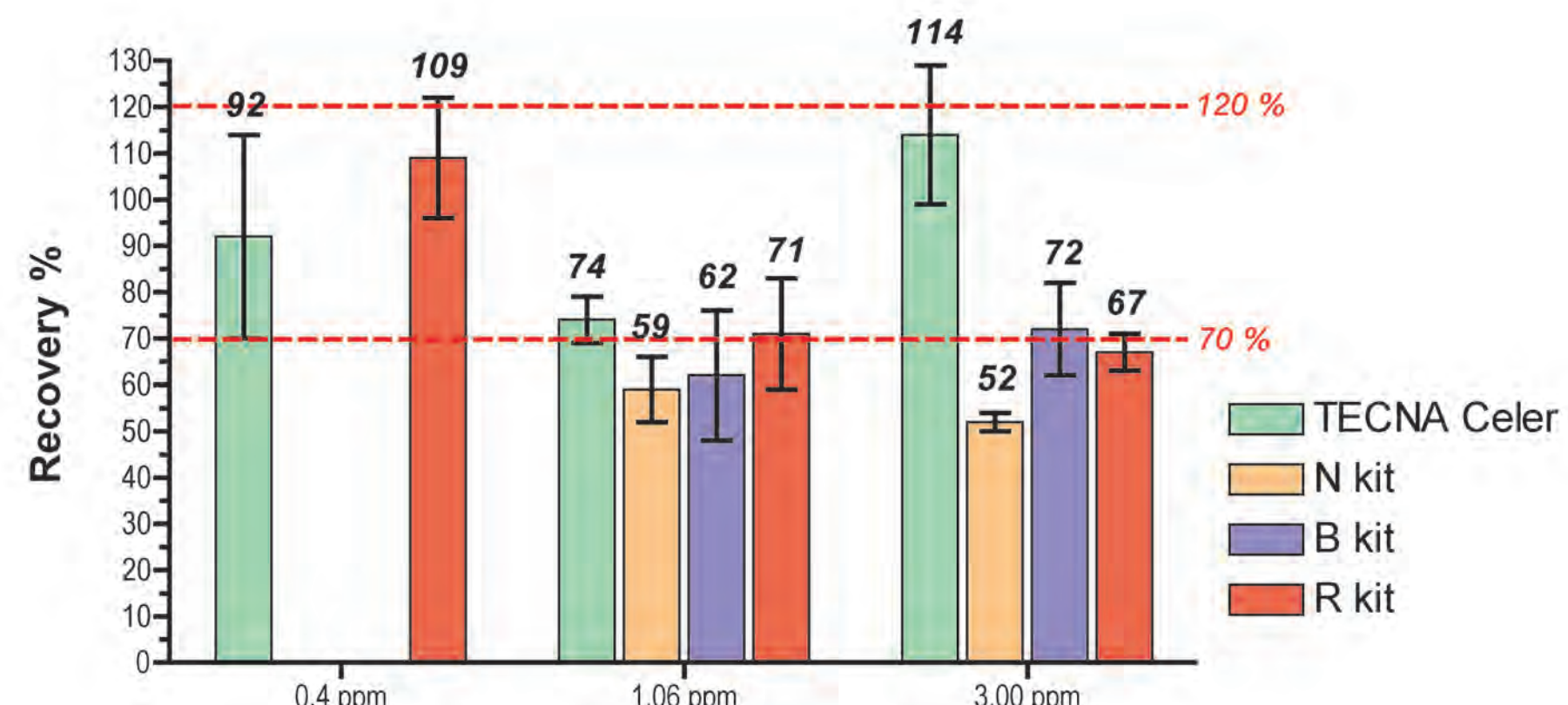
Four standard curves per test kits were obtained in four different analytical sessions and overlaid as follows to compare reproducibility:



Recoveries on incurred Corn material



Recoveries on incurred Durum Wheat



Conclusions

High sensitivity, no matrix effect, best recoveries (special durum wheat extraction procedure), good precision and accuracy are guaranteed for these matrices when analyzed by *Celer* DON.

“B” kit resulted to be the most un-precise test kit, showing high intra- and inter-assay CV and high variability for almost all evaluated commodities. “R” kit showed good results for wheat and durum wheat, while overestimated corn certified Biopure BRM3001 by $191 \pm 19\%$, $n=5$. “N” kit turned out to be a good test kit for maize and wheat, while very low recovery and accuracy were obtained for durum wheat, possible caused by narrow calibration range. All kits performed nearly equal on the Wheat reference samples, only exception is the B kit with very high CV's.