International Ring Trial for the Validation of an Event-Specific Golden Rice 2 Quantitative Real-Time Polymerase Chain Reaction Method

Abstract:
This article describes the international validation of the quantitative real-time polymerase chain reaction (PCR) detection method for Golden Rice 2. The method consists of a taxon-specific assay amplifying a fragment of rice Phospholipase D α2 gene, and an event-specific assay designed on the 3’ junction between transgenic insert and plant DNA. We validated the two assays independently, with absolute quantification, and in combination, with relative quantification, on DNA samples prepared in haploid genome equivalents. We assessed trueness, precision, efficiency, and linearity of the two assays, and the results demonstrate that both the assays independently assessed and the entire method fulfill European and international requirements for methods for genetically modified organism (GMO) testing, within the dynamic range tested. The homogeneity of the results of the collaborative trial between Europe and Asia is a good indicator of the robustness of the method.

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