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## Data Article

# Interlaboratory validation data on real-time polymerase chain reaction detection for unauthorized genetically modified papaya line PRSV-YK



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## ABSTRACT

This article is referred to research article entitled “Whole genome sequence analysis of unidentified genetically modified papaya for development of a specific detection method” (Nakamura et al., 2016) [1].

Real-time polymerase chain reaction (PCR) detection method for unauthorized genetically modified (GM) papaya (*Carica papaya* L.) line PRSV-YK (PRSV-YK detection method) was developed using whole genome sequence data (DDBJ Sequenced Read Archive under accession No. PRJDB3976). Interlaboratory validation datasets for PRSV-YK detection method were provided. Data indicating homogeneity of samples prepared for interlaboratory

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validation were included. Specificity and sensitivity test data for PRSV-YK detection method were also provided.

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## Specifications table

Subject area	Chemistry, Biology
More specific subject area	Food analysis
Type of data	Table, figure
How data was acquired	Real-time PCR using ABI PRISM 7900HT Sequence Detection System (Thermo Fisher Scientific Inc.)
Data format	Raw, analyzed
Experimental factors	Purified GM papaya DNA content (0%, 0.05% and 0.10% [w/w]), real-time PCR at 12 laboratories
Experimental features	Interlaboratory validation, specificity and sensitivity testing
Data source location	Chigasaki, Kawasaki, Kobe, Saitama, Tama, Tokyo and Yokohama, Japan
Data accessibility	Data available within this article

## Value of the data

- The data support development of real-time PCR detection method for GM papaya using whole genome sequence data.
- The data provide information on reliability of developed real-time PCR method to detect GM papaya line PRSV-YK.
- The data support developed real-time PCR method use in monitoring foods for GM papaya line PRSV-YK contamination.

## 1. Data

Datasets provided in this article represent reliability of unauthorized genetically modified (GM) papaya (*Carica papaya* L.) line PRSV-YK detection method (PRSV-YK detection method), including papaya endogenous gene, *Chymopapain* (*Chy*), detection method, using real-time polymerase chain reaction (PCR). Table 1 presents specificity of PRSV-YK and *Chy* detection methods. Fig. 1 shows that *Chy* detection method amplified papaya DNA, but both PRSV-YK and *Chy* detection methods did not amplify rice, soybean, maize, potato, rapeseed, pineapple, peach or passion fruit DNA. Fig. 2 presents sensitivity of PRSV-YK detection method. Cycle threshold (Ct) values obtained from real-time PCR amplification plot were quantitative ( $R^2=0.99$ ) in the range of 0.01–100% line PRSV-YK DNA concentrations. Table 2 presents results of homogeneity test on prepared samples. Table 3 presents statistical data obtained from homogeneity test on prepared samples. Table 4 summarizes interlaboratory validation data. Data were statistically analyzed to determine mean, relative standard deviation (RSD), repeatability RSD ( $RSD_r$ ) and reproducibility RSD ( $RSD_R$ ) from Ct values obtained [1].

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