# Primer development for detection of *Phaseolus vulgaris* and Olathe transgenic bean

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Key-words: transgenic bean, PCR, primers, Phaseolus vulgaris, common bean.

Several strategies have been employed for genetically engineering resistance to viruses in transgenic plants. The *bean golden mosaic virus* (BGMV) is responsible for causing the gold mosaic of common bean (*Phaseolus vulgaris L.*) and causes severe yield losses due to yellow-green mosaic of leaves, stunted growth and distorted pods. Olathe transgenic bean (Olathe 5.1) was successfully produced by EMBRAPA using the RNA interference (RNAi) concept to silence the *rep* viral gene in common bean to generate transgenic lines with strong resistance to BGMV. In this work, real time PCR (RT-PCR) method with SYBR Green was developed to detect this newly genetically modified (GM) plant. Primers were developed for specific detection of PvSR2 endogenous gene from *Phaseolus vulgaris* and also for the junction of 35S promoter and rep sequence from GM plants. The PCR method was shown to be specific for *Phaseolus vulgaris*, producing a 162 bp and a 184 bp fragment respectively for endogenous and transgenic fragments. The endogenous amplicon detection was positive for common bean samples and negative for soybean, maize, rice, lentil and pea samples. The transgenic amplicon detection was positive for Olathe 5.1 samples and negative for conventional common bean and the others samples analyzed. The detection limit was $10^2$ copies for the endogenous amplicon and $10^1$ copies for the transgenic amplicon. This method was suitable for specific detection and quantification of Olathe common bean after validation.

Orgão financiador: CNPq, Fapesc.