Primers, probes and plasmid development for specific PCR detection of genetically modified common bean *(Phaseolus vulgaris)* Embrapa 5.1

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The genetically modified common bean Embrapa 5.1, developed by Brazilian Agricultural Research Corporation (Embrapa), is the first commercial GM plant produced in Latin America. It presents high resistance to the *Bean golden mosaic virus*. In this study, primers, probes and plasmid targeting a taxon-specific reference DNA sequence (FEI) for common bean *(Phaseolus vulgaris* L.) and a construct-specific DNA sequence of Embrapa 5.1 GM common bean (OLA) were successfully developed. The primers and probes showed high specificity for the target detection. The mean efficiencies were of 99% and 89% and correlation coefficients (R²) were 0.98 and 0.99 for PvSR2 (FEI) and P35S/SeqAC1 (OLA) methods, respectively. Both methods showed suitable efficiency and performance to be used as an endogenous target for detection of common bean DNA and for construct-specific detection of GM common bean Embrapa 5.1, respectively. Both real-time PCR assays proved to be valuable for future assessment of interlaboratory studies. A pGEM plasmid containing both fragments for the target detection (495 bp PvSR2 and 339 bp P35S/SeqAC1) was constructed and it was used for calibration of real time PCR assays.