Development of the loop mediated isothermal amplification (LAMP) method for detection of Cauliflower mosaic virus

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The principle of the Isohermal Loop-Mediated Amplification (LAMP; Notomi et al, 2000) is to amplify the target DNA under isothermal conditions (60 ºC to 65 ºC) for about an hour with four primers that will recognize six regions of the target DNA. When amplifying DNA, structures called dumbbell-like are made and the hybridization of the different primers happen as DNA polymerizes. Such process allows the amplification to take place continuously. The LAMP process thus produces concatenated DNA stem-loop structures with different sizes. Thus, one way of revealing if LAMP happened is to observe smear on an agarose gel. Other ways of revealing the amplification are to use colorimetric tests such as Hydroxy-naphthol Blue (HNB) which turns blue when LAMP happens (due to pyrophosphate production during the reaction).

Method

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Conclusion

The Isotherme Loop-Mediated Amplification (LAMP) works on Cauliflower mosaic virus 35S promoter and is robust face to viral polymorphism.

Reference