Detection method for high-risk human papillomavirus typing of the most prevalence 4 types in Thai population using Loop-mediated isothermal amplification

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Human papillomavirus (HPV) is a small double-stranded DNA virus which belongs to the family *Papovaviridae*. Infection with high-risk HPV is a major risk factor for development of cervical cancer. Loop-mediated isothermal amplification (LAMP) is a potential method that can amplify nucleic acid under isothermal condition with high specificity and sensitivity. In this study, the LAMP method for detection of the most prevalent types (16, 18, 45 and 58) was established. The four sets of LAMP primer were specifically designed on the E6/E7 regions. The reaction was performed very shortly after incubation with *Bst* DNA polymerase at 63 °C for 60 min. Amplified product can be visualized by naked eyes or subjected to 1.5% agarose gel electrophoresis. The method was further evaluated by comparing to conventional polymerase chain reaction (PCR). The result had shown that the sensitivity and specificity of this study were equivalent or higher than PCR. Therefore, LAMP might be used as the alternative technique for HPV detection in medical diagnostic laboratories.