ABSTRACT

The influence of antibiotic on survival rate of embryogenic callus of oil palm was evaluated. The effects of the suitable concentration of cefotaxime to eliminate of Agrobacterium tumefaciens and hygromycin for selection were investigated. The biological factors including source of explant, Agrobacterium strains and type of plasmids, age of embryogenic callus, density of Agrobacterium, inoculation and co-cultivation period were studied. The results showed that concentration of cefotaxime at 200 mg/l was suitable for inhibition overgrowth of Agrobacterium. This concentration promoted somatic embryo production. Hygromycin at 30 mg/l was completely inhibited growth (100%) of callus, suitable for selection of transformed embryogenic callus. Thapa embryogenic callus and Agrobacterium strain AGL-1 containing plasmid pCAMBIA1304 which carrying the gene gus and hpt used as screenable and selectable marker genes, respectively, gave the best transformation efficiency. The embryogenic callus at 4 weeks after culture inoculated in Agrobacterium solution at density of 0.8 (O.D. at 600 nm) for 6 hours and co-cultivated on solid MS medium with 200 µM acetasyringone in the dark for 3 days, followed by culture on selection medium for 2 weeks gave the highest transient expression of gus gene at 100% . The hygromycin-resistant embryogenic callus was obtained at 63.89% and developed to form somatic embryo at 4 embryos/culture after 8 weeks of culture on selection medium. Polymerase chain reaction (PCR) analyse confirmed the presence of gus gene at size of 441 bp and hpt gene at size of 800 bp.