Evaluation of *pEASY*-uni seamless cloning and assembly kit to clone multiple fragments of *Elaeis guineensis* DNA

ABSTRACT

Several seamless DNA assembly kits based on in vitro homologous recombination activity are commercially available in recent years for efficient and rapid construction of expression vectors, subsequent transformation and investigation of gene functionality. This study was performed to estimate the efficiency of uni seamless cloning system, through cloning of multiple DNA fragments derived from *Elaeis guineensis* stearoyl-ACP desaturase (SAD) and metallothionein-like protein genes (MET1 and MET2) into a plasmid cloning vector. PCR fragments were assembled based on homologous overlapping regions of 25–30 bp into a pUC19 linearized vector. The successful cloning of the three DNA fragments was validated by blue white screening, colony cracking and colony PCR. The observed overall cloning efficiency for the three assembled DNA fragments of about 2.7 kb in size was above 65%. This system produces seamless junctions, is directional and does not rely on restriction enzyme digestion and any specific site within the DNA fragments.

Keyword: Multiple DNA fragments; Cloning; Gibson assembly; Seamless