

The natural coagulant *Moringa oleifera* lectin (MoL) as cationic protein is a promising candidate in coagulation process of water treatment plant. Introducing the gene encoding MoL into a host, *Pichia pastoris*, to secrete soluble recombinant protein is assessed in this study. Initial screening using PCR confirmed the insertion of *MoL* gene, and SDS-PAGE analysis detected the MoL protein at 8 kDa. Cultured optimization showed the highest MoL protein at 520 mg/L was observed at 28 °C for 144 h of culturing by induction in 1% methanol. Approximately, 0.40 mg/mL of recombinant MoL protein showed $95 \pm 2\%$ turbidity removal of 1% kaolin suspension. In 0.1% kaolin suspension, the concentration of MoL at 10 $\mu\text{g/mL}$ exhibits the highest turbidity reduction at $68 \pm 1\%$. Thus, recombinant MoL protein from *P. pastoris* is an effective coagulant for water treatment.

