Optimization of polymerization conditions for enhanced *in-vitro* hemozoin production by enzymatic process

이주훈, 이수권, 김형렬, 이희욱, 유하영[1], 김승욱†
고려대학교; [1]상명대학교
(kimsw@korea.ac.kr†)

Recently, conductive polymers have receiving attention in industrial nano-biotechnology due to its tremendous potential for a variety of applications such as electronics, robots, energy devices, bio-chips and composites as a viable alternative to semi-conductive materials or energy sources. In this study, to determine the potential applicability of hemozoin, the conductivity of heme (monomer of hemozoin) was mesaured as 4.0×10^{-3} μS/cm. The polymerization of hemozoin by using HRP-Ⅱ was performed *in vitro* system and the qualitative analysis of produced hemozoin was confirmed by FT-IR, EDS and SEM. To improve the *in vitro* production of hemozoin, the effect of reaction factors on the polymerization was investigated. The maximum production of hemozoin was achieved about 790 μM at 34°C, 200 rpm in shaking incubator for 24 h, and the production was 2-fold improved according to the stepwise optimization *in vitro* system.