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Rhodopseudomonas palustris COLLAGEN-LIKE RECOMBINANT PROTEIN PURIFICATION USING AN AQUEOUS TWO-PHASE SYSTEM

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[Full text options](#)
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[Abstract](#)[Author keywords](#)[Reaxys Chemistry database information](#)[SciVal Topics](#)[Funding details](#)**Abstract**

The potential use of recombinant collagen-like protein (recCLP) extracted from bacteria as disease-free collagen has been studied over the past decade. However, the complexity of the downstream processing generates high demand for an efficient and low-cost purification method. Aqueous two-phase system (ATPS) was adopted as a new approach to the recovery of biomolecules due to its simple, benign, and straightforward process. This study aimed to purify recombinant collagen-like protein from *Rhodopseudomonas palustris* using ATPS formed by a polymer/salt system. Recombinant collagen-like protein from *R. palustris* was partitioned in ATPS composed of polyethylene glycol (PEG) and potassium phosphate and several factors that influence the protein partitioning such as volume ratio, system pH, the concentration of polymer and salt were studied. Then, optimization of the selected ATPS conditions (PEG and salt concentration) were performed using response surface

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(2020) *Asia-Pacific Journal of Molecular Biology and Biotechnology*

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An, B. , Abbonante, V. , Xu, H. (2016) *Journal of Biological Chemistry*

Growth factor-mimicking 3,4-dihydroxyphenylalanine-encoded bioartificial extracellular matrix like protein promotes wound closure and angiogenesis

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methodology (RSM). Results showed that the optimum conditions were found in ATPS with 24.80% (w/w) PEG 2000 and 29.23% (w/w) potassium phosphate with recCLP concentration of 3.23 ± 0.12 mg/mL with purification factor 7.48 ± 0.3 . In comparison with the affinity chromatography method, ATPS was found to be low-cost, and time-saving with a higher protein recovery. Hence, this study demonstrated the potential application of ATPS in the recovery of recombinant CLPs for large-scale downstream processing © 2023, IIUM Engineering Journal. All Rights Reserved.

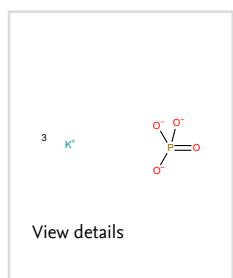
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aqueous two-phase system; chromatography; purification; *R. palustri*; recombinant collagen-like protein

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