**ABSTRACT**

In this study, the [ionic liquid](https://www.sciencedirect.com/topics/chemistry/ionic-liquid) based hydrogels were synthesized by [free radical polymerization](https://www.sciencedirect.com/topics/chemistry/radical-polimerization). About 0.1 g of dried hydrogel placed in 20 ml of solution containing 4.0 mg/ml of BSA in BR buffer (various pH level) and allowed to equilibrate the swelling at 30 °C. The maximum protein separation 76.1% was achieved at pH 5.0 in [room temperature](https://www.sciencedirect.com/topics/chemistry/ambient-reaction-temperature). The hydrogels with various feed [compositions](https://www.sciencedirect.com/topics/chemistry/phase-composition) possess good antibacterial as well as [antifungal activity](https://www.sciencedirect.com/topics/chemistry/antifungal). The anthelmintic activity of hydrogels suggested that it can be effective against parasitic infections of humans. The DPPH scavenging assay results showed 89.44% of [ionic liquid](https://www.sciencedirect.com/topics/chemistry/ionic-liquid) hydrogel as an [antioxidant agent](https://www.sciencedirect.com/topics/chemistry/antioxidant-agent).