

Isolation, Purification and Function Analysis of Lectin from Kidney Bean (*Phaseolus vulgaris*) Seeds †

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Abstract: Lectins are a form of protein that binds to cell membranes and are present in all forms of life, including plants, humans, bacteria, viruses, and fungi. The yields of animal lectins are usually low compared with the yields of plant lectins like legume lectins. In the present study, lectins are isolated from kidney bean (*Phaseolus vulgaris*), and it was galactose-specific and contained a high amount of hemagglutination activity toward erythrocytes of human ABO blood types. The biological applications of plant lectins include anticoagulant, anti-bacterial, anti-inflammatory, anti-tumor, anti-proliferative, apoptosis activities. *Phaseolus vulgaris* lectin, isolated from kidney bean seeds, has been inhibited the proliferation of breast cancer MCF-7 cells in anticancer action mechanism including cell cycle arrest in G2/M phase, phosphatidylserine externalization, and mitochondrial membrane depolarization and Inflammatory mediators are involved in cell migration, invasion, and metastasis of malignant cells. The suppression of the inflammatory pathways either in transcriptional and translational levels can be used for both prevention and treatment of cancer. Inflammation in lipopolysaccharide-induced macrophages through suppression of NF-κB pathways.

Keywords: anticancer; apoptosis; inflammatory mediators anti-inflammatory.

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Conflicts of Interest

The authors declare no conflict of interest.