



Suppressive effects of medicinal plants and their derivatives on inflammasome complex: a systematic review

Mohammad Reza Mahmoudian Sani^{1,2}, Majid Asadi-Samani^{3*},
Ali Saeedi-Boroujeni⁴, Mehdi Banitalebi-Dehkordi², Mahmoud Bahmani⁵

¹Research Center for Molecular Medicine, Hamedan University of Medical Sciences, Hamedan, Iran;

²Cellular and Molecular Research Center, Shahrekord University of Medical Sciences, Shahrekord, Iran;

³Student Research Committee, Shahrekord University of Medical Sciences, Shahrekord, Iran;

³Medical Plants Research Center, Shahrekord University of Medical Sciences, Shahrekord, Iran;

⁵Razi Herbal Medicines Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran.

Abstract : Inflammasome activation is mediated by (NOD)-like receptors (NLR) proteins that respond to stimuli. Among NLRs, NACHT- LRR and PYD domains-containing protein 3 (NLRP3) senses the widest array of stimuli. NLRP3 inflammasome has an important role in the development of many inflammation disorders. Regarding the significance of inflammatory diseases, and the necessity of preventing and treating these diseases, the aim of this review article is to report medicinal plants and their nature-based derivatives that are effective on suppression of inflammasome complex. Web of Science and PubMed databases were searched using the Endnote software for the publications about the role herbal medicine in inflammasome activation pathways from 2000 to February 2016. *Sophora flavescens*, *Lycium barbarum*, *Impatiens textori* Miq., *Syneilesis palmata* (Thunb.), *Aloe vera*, citral (3,7-dimethyl-2,6-octadienal), celastrol, sulforaphane, schisandrin, resveratrol, dehydrodiconiferyl alcohol (DHCA), luteoloside, Pulsatilla decoction, and Wuling San have been reported to suppression function of inflammasome. Medicinal plants and their derivatives can be useful for inflammation related disorders by suppress NLRP3 inflammasome activation. However, they should be investigated in clinical trials to help to prevent and treatment of inflammatory diseases.

Keywords: Inflammasome, Inflammation, Medicinal plants, Phytochemicals, Herbal drugs.