

The improvement effect of anti-inflammation of Aronia extract that fermented by Lactic acid bacteria isolated from the fermented seafoods

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Aronia (black chokeberry), a species of berries is source to a very large number of bioactive compounds like polyphenols, flavonoids, anthocyanins, and tannins in comparison to any other species. Owing to its antioxidant, anti-carcinogenic, anti-aging and anti-inflammatory properties. Fermentation- a bioconversion process exploiting the biological metabolic reaction of micro-organisms, has several benefits like improving the efficacy and safety of physiologically active substances, generation of new functional material, improving the adsorption rate and many others. Antigens like pathogens, food, pollen etc., generate a protective immune response in body tissues, and the process be referred to as inflammation. However, this when excessive results in a condition referred to as refractory inflammatory disease, whose incidence is increasing in the recent times, especially amongst children.

The current study intended to assess the anti-oxidant activity, presence of polyphenols and anti-inflammatory efficacy of Aronia extract fermented by Lactic acid bacteria isolated from fermented sea foods. Aronia fruits collected from Sunchang, Chonbuk were lyophilized for fermentation. So as to maximise the efficacy of the fermented Aronia extract, the quantitative effects of lactic acid bacteria species, composition of extraction solution, influence of temperature and time on antioxidant activity and total polyphenol contents were investigated using an experimental design. Anti-inflammatory activity was evaluated on NO and cytokine (TNF- α , IL-6) production in LPS activated Raw 264.7 cells. Results indicated that antioxidant effect and total polyphenol contents were best improved in extract of Aronia fermented by *P. pentosaceus*. In addition, NO and cytokine (TNF- α , IL-6) levels were decreased significantly after fermentation. Thus, it was found that the anti-inflammatory activity of Aronia greatly increased after fermentation process using *P. pentosaceus*.

Key words : Aronia, Lactic acid bacteria, Fermentation, anti-inflammatory

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