

Remyelination effect of p-Coumaric acid via reducing MMP9 gene expression in Cuprizone mice model

Mitra Atayi ¹, Mohammad Hossein Sanati ^{2*}, Newshan Behrangi ³,
Nabiyollah Namvar ⁴, Zahra Zamanzadeh ⁵

1-National Institute of Genetic Engineering and Biotechnology, Tehran, Iran

2-National Institute of Genetic Engineering and Biotechnology, Tehran, Iran

3-Faculty of Basic Sciences and Advanced Technologies in Biology, University of Science and Culture, Tehran, Iran

4-Pasteur institute, Production & Research Complex, Karaj, Iran

5-National Institute of Genetic Engineering and Biotechnology, Tehran, Iran

Multiple sclerosis (MS) is an inflammatory immune disease that has effect on myelination in central nervous system and Matrix metalloproteinases (MMPs) induce multiple sclerosis by destructing blood-brain barrier and myelin sheet. p-Coumaric acid is a member of hydroxycinnamic acids group and has potent antioxidant activity and is prevalent in various fruits. In current research, tart cherry as a source of p-Coumaric acid was candidate, both p-Coumaric acid and tart cherry extraction were studied on remyelination. Therefore, Cuprizone mice model were provided to study remyelination process and gene expression of MMP9 was evaluated by Real time PCR to consider the role of antioxidants in reducing destructive effect of MMPs. As a result, both p-Coumaric acid and tartcherry extraction could significantly reduce gene expression of MMP9 in remyelination phase and induce remyelination and improvement in myelin sheet repair .

Key words: Multiple sclerosis, Cuprizone, p-Coumaric acid, tart cherry, MMP9