

# **Investigation of antimicrobial and inhibitory effects of *Rosmarinus officinalis* extract on production of amyloid nanobiofibrils as a protein model**

Faezeh Fallah\*,

**Introduction:** Nowadays, research on bioactive substances of the plant has earned a growing interest in living such as pharmaceutical and food processing, due to their beneficial health effects. *Rosmarinus officinalis* is one of the most studied Mediterranean herbs, thanks to its active compounds, which belong mainly to the class of secondary metabolites. The aim of this study was to the investigation of antimicrobial and inhibitory effects of *Rosmarinus officinalis* extract on the production of amyloid nanobiofibrils as a protein model. **Material and method:** In present study, *R.officinalis* plants were bought and then extraction was performed by hydroalcoholic assay. Essential extract compounds were identified by GC-Mass analysis. Standard disk diffusion, well diffusion and determination of minimum inhibitory concentration methods were used to study the antibacterial properties. Also, anti-Alzheimer effect of *Rosmarinus officinalis* extract was measured by its inhibitory activity on the production of amyloid nanobiofibrils as a protein model. **Result:** Several *Rosmarinus officinalis* components, mainly, Pyrrolidinone, endo-Borneol, alpha-Terpineol, Geraniol, beta-D-Ribopyranoside, D-Glucitol, Phytol, Ferruginol, and Gibberellin, have demonstrated different biological activities, such as anti-oxidant, anti-Alzheimer, as well as beneficial effects against pathogen bacteria. The most important chemical compounds of *Rosmarinus officinalis* extract was Gibberellin. The antimicrobial activity of extract on pathogenic bacteria revealed that the MIC of rosemary for *E. coli* and *S. aureus* were 0/625 and 0/625 mg/ml, respectively. **Conclusion:** The *Rosmarinus officinalis* extract in relatively low concentrations is very effective on growth of pathogenic bacteria and production of

---

**amyloid nanobiofibrils. Therefore, it can be used as a natural antimicrobial and anti-Alzheimer compound.**

**Keywords : Key words: Rosmarinus officinalis, pharmaceutical, disk diffusion, antimicrobial, minimum inhibitory concentration**

[Islamic Azad University, Rasht Branch - Thesis Database](#)  
[دانشگاه آزاد اسلامی، واحد رشت - سامانه بانک اطلاعات پایان نامه ها](#)