

عنوان مقاله:

Confrontation of soil symbionts and inhibition of oak (*Quercus brantii*) decay

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خلاصه مقاله:

The oak forests are one of the typical crucial ecosystems placed in western Iran. A remarkable area of these forests situated in Kermanshah province. Due to human manipulation, ecological and climate change are deteriorating. In this investigation, microbial isolation and treatments were offered to evaluate their effects on oak growth. Samples collected from *Quercus brantii* of Kermanshah regions, Iran, and were cultivated on ISP2 and NA medium, kept at 28 °C for one month. The Microscopic identification and phosphate solubilization assay for primary and nitrogen fixation, hydrogen cyanide, protease, and phytohormone production performed. Lastly, Seedlings with selected isolate treated and growth and survival parameters measured. All strains were able to produce auxin and gibberellin in different values. All of the isolates able to solubilize phosphate. The outcomes of nitrogen fixation ability, protease, and siderophore production diverged among strains. Picked isolates exhibited hormone production properties as well as biocontrol influences according to tests. Co-treatment of *Streptomyces* sp. Qb2- *Pseudomonas* sp. Qb, *Streptomyces* sp. Qb2-*Bacillus* sp. Qb and *Streptomyces* sp. Qb2- *Pseudomonas* sp. Qb had a notable effect on seedling growth parameters ($P < 0.001$), oak species survival ($P < 0.001$), and improved significantly the longitudinal growth, diameter, and dry weight percent of seedlings ($P < 0.005$) Respectively. *Streptomyces* sp. Qb2 and *Bacillus* sp. Qb strains had the highest and lowest inhibition effects on bacterial plant pathogen, *Pseudomonas syringae*. *Streptomyces* sp. Qb2 strains significantly promote root formation. To our understanding, this is the first record of *Streptomyces* endophyte isolation from Iranian oak trees with biocontrol and growth-inducing impacts. It is also proposed to apply the co-treatment plan to increase biocontrol effects and growth induction.

کلمات کلیدی:

.Oak, symbionts bacteria, co-treatment, *Streptomyces*, *Quercus brantii*

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