

Endophytes isolated from *Chelidonium majus* and their abilities for biosurfactant production

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Statement of the Problem: Endophytes, which have been found in every plant species, are currently considered to be a wellspring of novel secondary metabolites. In view that some plants generating bioactive natural products have associated endophytes that produce the same natural substances the endophytes has become an interesting alternative for functional substances production in a wide variety of medical, agricultural, and industrial areas. *Chelidonium majus* L. (greater celandine), is a plant occurring naturally in the Europe, Asia and South America. Although the herb is toxic it produces valuable bioactive substances. The preparations of celandine, ie. tinctures, infusions contains alkaloids which inhibit the growth of fungi, bacteria, viruses, protozoans. It has many therapeutic uses and also anticancer properties. Biosurfactants, which are bioactive compounds well known as remediation agents also have potential for medicine. The presence of these compounds in *Ch. majus* has not been previously studied.

Methodology & Theoretical Orientation: A laboratory scale study on isolation of endophytes from *Ch. majus* origin from three different localization in Poland has been performed. Ability for biosurfactant production of isolated strains was made in the submerge culture condition, in the presence of hydrophobic and hydrophilic substrates, on the base of emulsifying activity and emulsion index I24 measurement.

Findings: 17 endophytic strains (11 bacteria, 6 fungi) was isolated. Four of the tested microorganisms have shown high emulsifying activity (above OD500~0,85) and good emulsion - stabilizing capacity (E24~65 %).

Conclusion & Significance: These results strongly suggest that the endophytic microorganisms isolated from *Chelidonium majus* show good emulsification properties which is crucial for biosurfactants production. This is the first report showing the ability for biosurfactant production by *Ch. majus* endophytes.

Biography

Environmental biotechnology and industrial biotechnology specialist with wide experience related to the development and use of microbiological and enzymatic preparations in the utilization of environmental pollution. Together with Researching of Oil and Gas Company Jaslo (PGNIG Group), participated in a project related to the development of comprehensive land remediation technologies. The author of 10 patents.

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