

# Call for papers: Use of Biopolymers in Environmental Geotechnics

Upcoming themed issue of *Journal of Environmental Geotechnics*

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200 word abstract submissions by: 1 November 2023  
Full submissions by: 1 April 2024

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We are organising a themed issue on the “Use of Biopolymers in Environmental Geotechnics”.

Recently, attempts have been made to employ biopolymers in environmental geotechnics. These biopolymers are produced from natural resources, including polysaccharides (e.g., cellulose), proteins (e.g., gelatin, casein and silk) and marine prokaryotes. Chemical synthesis of bio-derived monomers (e.g., polylactic acid) or microbial activities (e.g., xanthan and gellan gums) can also produce biopolymers. Biopolymers are regarded as environmentally friendly with low CO<sub>2</sub> footprints compared to conventional, cementitious soil stabilizing binders and have been widely applied in the agriculture, food and medical sectors. For example, studies have shown that utilization of biopolymeric gums in agricultural activities, as soil amendments, promoted seed germination and vegetation growth, contributing to sustainable development practices. Similarly, in environmental geotechnics' practices, the use of biopolymeric gums has been advocated to strengthen soils, control hydraulic flow, reduce erosion potential, suppress dust generation and treat wastewater, thereby enhancing circular economy. Important considerations include the initial preparation of the biopolymer prior to soil addition, the optimum biopolymer concentration, how it is added to the in-situ soil, and the longevity and hence the sustainability/durability of the treated soils.

The issue will concentrate on field case studies and trials on the use of biopolymeric gums to treat soils and wastewater. We invite contributions on the following topics:

- Strength and compressibility of biopolymeric-treated subsurface soils
- Flow characteristics of biopolymeric-treated hydraulic soil-based structures
- Erosion control of biopolymeric-treated collapsible soils
- Dust suppressions of biopolymeric-treated sand dunes
- Energy storage systems in arid land biopolymeric-treated soils
- Toxic metal removals from wastewater in treatment plants