



New range of natural products for pre-treatment of water desalination plants

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ABSTRACT

Water desalination plants performance and time evolution of its main operational parameters may be influenced by the presence of certain substances both in solution and in suspension in natural waters. Within these substances, humic acids, which percentage may rise up to 50% of total organic matter, could lead to film formation on membranes surface if removal treatments are not properly implemented. Moreover, contact with disinfectant agents such as chlorine can cause the formation of trihalomethanes (THMs) as undesirable reaction side products. Synthetic coagulant and flocculant dosing programs are included as pre-treatments in water desalination plants as a first stage on water processing in order to remove colloidal matter, from both organic and inorganic sources. However, coagulant and flocculant overdosing not only may be null from the treatment effectiveness point of view but also might lead to recalcitrant fouling phenomena. ADIC GR102, a natural polymer, was used as a flocculant agent in natural organic matter removal processes leading to similar organic matter removal yields and Flocculation Index values to those obtained with currently marketed products. Several assays performed at 80% of coagulant requirement to destabilize the suspension and relatively low dosage of ADIC GR102 opened the doors to a promising future water treatment strategies.

Keywords: Coagulation; Flocculation; Organic matter; Natural polymers

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