

Accepted Manuscript

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PII: S0960-8524(18)31326-9
DOI: <https://doi.org/10.1016/j.biortech.2018.09.073>
Reference: BITE 20489

To appear in: *Bioresource Technology*

Received Date: 24 July 2018
Revised Date: 12 September 2018
Accepted Date: 14 September 2018

Please cite this article as: Kumar, N., Banerjee, C., Kumar, N., Jagadevan, S., A novel non-starch based cationic polymer as flocculant for harvesting microalgae, *Bioresource Technology* (2018), doi: <https://doi.org/10.1016/j.biortech.2018.09.073>

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A novel non-starch based cationic polymer as flocculant for harvesting microalgae

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Abstract

This work intends towards the preparation of different grades of cationic locust bean gum biopolymer (CLBG) through the incorporation of 2, 3-epoxypropyltrimethylammonium chloride (GTMAC) on to the pristine locust bean gum (LBG) biopolymer. Among them the best grade was further selected, characterized and their flocculation efficacy was evaluated towards harvesting of three different indigenous isolated green microalgae viz. *Chlorella* sp. NCQ, *Micractinium* sp. NCS2 and *Scenedesmus* sp. CBIIT(ISM). Flocculation efficiency of 96.68 %, 96.64 %, and 97.42 % were obtained for *Chlorella* sp. NCQ, *Micractinium* sp. NCS2 and *Scenedesmus* sp. CBIIT(ISM) at an optimum dosage of 55, 40, and 30 ppm respectively. Thus CLBG was proven to be an efficient flocculant towards harvesting of green microalgae than its natural form.

Keywords:

Cationic biopolymer; Cationic locust bean gum; rDNA, *Chlorella* sp. NCQ; *Micractinium* sp. NCS2, *Scenedesmus* sp. CBIIT(ISM), 2,3-epoxypropyltrimethylammonium chloride.

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