

AMPHOTERIC AMYLOPECTIN- A NOVEL FLOCCULANT

Ram Prakash Singh^{a*}, Sagar Pal^b

^a Indian Institute of Science Education and Research, 900, NCL Innovation Park, Dr. Homi Bhabha Road, Pune-411008, India.
(E-mail: singh.prakash.ram@gmail.com)

^b Polymer Chemistry Laboratory, Department of Applied Chemistry, Indian School of Mines, Dhanbad – 826004, India.
(E-mail: sagarpal1@hotmail.com)

ABSTRACT

Amphoteric flocculants are used to remove both positively and negatively charged contaminant particles in suspensions. A novel amphoteric flocculant has been developed in authors' laboratory by grafting both anionic and cationic moiety on amylopectin backbone¹. By grafting of polyacrylamide and subsequent hydrolysis, anionic amylopectin has been synthesized. Afterwards, a cationic moiety has been inserted both by chemical / microwave processing. The synthesised amphoteric amylopectin has been characterized using various materials characterization techniques. The flocculation efficiency of the amphoteric amylopectin has been investigated in kaolin and iron ore suspensions. The results indicate its high efficiency in comparison with anionic, grafted, and base amylopectin. The amphoteric amylopectin prepared via microwave irradiation showed best flocculation efficiency. Further, the developed amphoteric amylopectin shows excellent efficiency as adsorbent for removal of toxic reactive dyes from aqueous solution.

Acknowledgement: The entire work reported in this paper was supported by CSIR Emeritus Scientist Scheme No. 21(0780)/09/EMRII. Authors express their gratitude to CSIR, New Delhi, India.

References: Singh, R. P.; Pal, S.; Rana, V. K.; Ghorai, S. *Carbohydrate. Polym.* **2013**, *91*, 294.