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Impact of Wastewater from Outfalls of River Ganga on Germination Percentage and Growth Parameters of Bitter Gourd (Momordica charantia L.) with Antioxidant Activity Study

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Abstract : An extensive seasonal analysis of wastewater had been done from outfalls of river Ganga in Howrah, Hooghly, 24 PGS (N) District, West Bengal, India during 2017. The morphological parameters of Bitter gourd (Momordica charantia L.) were estimated under wastewater treatment. An approach to study the activity within the range of low molecular weight peptide 3-0.5 kDa were taken through its extraction and purification by ion exchange resin column, cation, and anion exchanger. HPLC analysis had been done for both in wastewater treated and untreated plants. The antioxidant activity by using DPPH and germination percentage in control and treated plants were also determined in relation to wastewater effect. The inhibition of growth and its parameters were maximum in pre-monsoon in comparing to post-monsoon and monsoon season. The study also helped to explore the effect of wastewater on the peptidome of Bitter gourd (Momordica charantia L.). Some of these low molecular weight peptide(s) (3-0.5 kDa) also inhibited during wastewater treatment. Expression of particular peptide(s) or absence of some peptide(s) in chromatogram indicated the adverse effects on plants which may be the indication of stressful condition. Pre monsoon waste water was found to create more impact than other two.

Keywords : bitter gourd (Momordica charantia l.), low molecular weight peptide, river ganga, waste water
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