

Impact of Corn Gluten Hydrolysate on Seedling Growth

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Abstract : A study was initiated to examine the effects of corn gluten hydrolysate on seedlings growth and its development. Corn gluten is the byproduct of starch industry rich in proteins was hydrolysed by acid and alkali, and the impact of hydrolysate was studied on seed germination of *Vigna radiata*, *Phaseolus vulagris* (Fabaceae) and *Triticum aestivum* and *Oryza sativa* (Gramineae). For this, the optimum hydrolysis was obtained by 4NHCl and 4M NaOH where insoluble protein in gluten was broken down to glutamic acid, alanine, aspartic acid which was initially confirmed by biuret test, xanthoproteic, solubility and chromatographic tests. The seeds of above families were separately treated with different dilutions of corn gluten hydrolysate ranging from 1-100% to see effects produced by these dilutions on seed germination, plumule, and radical growth. The seedlings were put in the Petri plates and placed in the optimized conditions of temperature (37°C) and photoperiod of 16:8 hours. The results indicate the plumule of all seeds shows the increase in growth pattern up to 25.75%. Whereas radical shows the increase in growth up to 25.88% till 10% of dilution of corn and wheat gluten hydrolysate with respect to water as blank. Further, there is decrease in growth from 30- 100% of dilutions of both, the hydrolysate indicates the inhibitory effects which unveil about the careful usage of gluten hydrolysate.

Keywords : corn gluten, characterization, hydrolysis, seedling growth

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