

ECOFRIENDLY UTILIZATION OF DILUTED DISTILLERY EFFLUENT ON MORPHOLOGICAL, PHYSIOLOGICAL AND BIOCHEMICAL PARAMETERS OF *TRITICUM AESTIVUM* PLANT

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ABSTRACT : Distillery spent wash is acidic and contain high levels of soluble salts. Among the plant nutrients, K is found in considerable amount followed by N and P. The presence of calcium in considerable amount makes the spent wash a potential amendment for reclaiming sodic soil. The beneficial effect of distillery effluent is exerted only at higher dilution that is the ferti-irrigated water should have the BOD level of 100 mg/l or less for land application. As such, field experiment was conducted to study the effect of diluted post-methanated effluent of United Distillery Ltd., Hathidah (Bihar) in Mokama Taal Area near the vicinity of industrial unit on the morphological, physiological and biochemical parameters on the wheat plant (*Triticum aestivum*). The results showed that the plant leaf length, kernel, number of branches, total carbohydrate of leaf and seed, root, ascorbic acid and protein of the stem increased significantly. The yield of wheat per hectare increased 5.8 quintal more than the conventional inorganic fertilizer (urea and DAP) suggesting distillery effluent better than the conventional chemical fertilizers. As per the Protocol of MoEF, Govt. of India, the Unit opting for ferti-irrigation should monitor the soil conditions as well as ground water to assess the quality of soil and water during the post ferti-irrigation. The results of two years showed that there was no significant change in the soil and ground water. But it was interesting to note that the yield of wheat following the treatment of diluted effluent was encouraging and promising. The ferti-irrigation would invoke a more ecological approach in agriculture and consequently enhance the biological activity of soil whereby increasing the export potential of wheat grain produced by organic fertilizer especially when there is a greater demand of grain produced by organic fertilizer by Western Countries. In other words “pollutant turns nutrients” proving the concept of “Waste to Wealth”.

Key Words: Distillery effluent, ferti-irrigation, *T. aestivum*, organic fertilizer.