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Adverse Impacts of El-Salam Canal Irrigation Water on Chemical Characterizations of Sinai Soils

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Abstract : The relationship among irrigation water type, soil characterization and production of cultivated crops are widely closed. El-Salam canal in North of Sinai consisted of mixture of both drainage and Nile water (1:1 ratio) is main source of irrigation. Long application period of such water in Gelbana region, El-Tina plain beside poor drainage, all led to deteriorate soil characterizations and decrease crop production in such soils. In this work, through 7 months water samples were collected from El-Salam canal and different chemical characterization were analyzed and sample from Nile water (NW) was also collected as control. The soil sample was collected from the cultivated farm irrigated with this low quality mixed water was also collected and analyzed for their chemical characterization, the control soil sample was chosen from the same region with coarse texture and well managed farm. The obtained results reveled that all chemical characterization values of water samples through the studied period were higher than NW values. For example, the pH of water samples collected from El-Salam canal significantly higher that NW ranged between 7.35 and 7.86, meanwhile, it was 7.32 in NW. According to Doneen parameter this water is not safe to be used in irrigation. Significant amounts of potential toxic elements were also noticed in this type of water varied from month to month especially in lead Pb. The directed effect of this low quality water was observed in different soil characterizations such as heavy metals content, sodium adsorption ratio etc...
This study concluded that long term application of such low quality water should be followed by remediation technique(s) to minimize its healthy hazards.
Key words: irrigation, low quality water, soil characterization.

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