Risk assessment of agricultural pollution on groundwater quality in the high valley of Tadjenanet: Chelghoum Laid (Eastern Algeria)

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ABSTRACT

The region of Tadjenanet–Chelghoum Laid is located in the upper valley of Oued Rhumel. It has shown in recent years an important agricultural and industrial development, which resulted in increased occupancy of the natural environment and therefore a deterioration of water quality of surface and underground aquifer located in the alluvium of Mio Plio Quaternary. This study aims to determine the critical impact of natural and anthropogenic pollution on physico-chemical water of the shallow aquifer zone of Tadjenanet–Chelghoum Laid. Chemical analysis of this water showed a rather marked salinity, due to dissolution and leaching of surrounding formations, carbonate, and gypsiferous alluvial. The high concentration of nitrate in irrigated areas at the periphery of Oued Rhumel reflects the agricultural activities, marked by a wide variety of crops, marked by an unmanaged employment of chemical fertilizers, especially nitrogen.

Keywords: Risk; Pollution; Groundwater; Alluvium; Aquifer; Nitrate; Tadjenanet–Chelghoum Laid

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