# RADICAL FORMATION AND SALINE CHARACTERISTICS OF GROUNDWATER AT DIFFERENT AQUIFER DEPTHS IN *CHAJ DOAB*

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**ABSTRACT**

*Water samples from hand pumps (15±1.5 m deep), private tubewells, (39±9 m) and public tubewells (90±15 m), as representatives of three aquifer depths, D-I, D-II and D-III were evaluated for radical formation and quality characteristics. The data depicted that the highest unfit water samples were recorded in D-II, where 20%, 6.66% and 13.32% samples had EC> 1.0 dS $m^{-1}$, SAR >10 $(mmol_c\ l^{-1})^{0.5}$ and RSC >2.5 mmolc $L^{-1}$, respectively. The SAR and EC were significantly correlated (r >0.73**). The Ca:Mg ratio for some of the samples exceeded 1:2.4 that needs a special concern . In contrast to $SO_4^{2-}$ and $Cl^-$, the concentration of $HCO_3^-$ for all the depths was higher at low total salt concentration of the groundwater (<12.0 me $L^{-1}$). However, it tends to decrease as the total salt concentration of the groundwater increases. Next to $HCO_3^-$, sulphate ($SO_4^{2-}$) among anions, while $Ca^{2+}$ and $Mg^{2+}$ among cations were dominant. Analytical data depicted that in addition to the conventional water quality indicators, the radical composition and ion distribution patterns in groundwaters should also be taken care of to account for geochemical precipitation of the ions in soil, where the water ultimately has to interact.*