Screening of the Effect of Ground Water Quality on the Stability of Norfloxacin and Doxycycline in Drinking Water of Poultry

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Abstract:

This study was conducted to clarify the possible effects of ground water characteristics of the New Valley, Egypt, on the concentrations of both norfloxacin and doxycycline "in-vitro". Thirty two ground water samples (pooled samples) were collected and examined for their water quality parameters and heavy metals concentrations (pH, chloride (Cl\textsuperscript{-}), calcium (Ca\textsuperscript{2+}), magnesium (Mg\textsuperscript{2+}), sodium (Na\textsuperscript{+}), total hardness, electrical conductivity (EC), total dissolved solids (TDS), iron (Fe), copper (Cu), zinc (Zn) and nickel (Ni). Therapeutic doses of both norfloxacin and doxycycline were added separately to the ground-water samples and were left for different contact times. Results showed that norfloxacin concentrations significantly decreased with increasing the time of contact till 3 hours while, doxycycline showed a non-significant decrease which increased with increasing the contact time to 8 hours. Each of TDS, EC, Mg\textsuperscript{2+}, Na\textsuperscript{+}, Cl\textsuperscript{-} and Fe\textsuperscript{2+} showed significant positive correlations with the decreasing percent of norfloxacin while only Ca\textsuperscript{2+} ions concentration showed a significant negative correlation with the decreasing percent of doxycycline.

Keywords:

Ground-water- water quality, norfloxacin, doxycycline, poultry, heavy metals

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