



Viral and bacterial contamination in a sedimentary aquifer in Uruguay: evaluation of coliforms as regional indicators of viral contamination.

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In many areas of Uruguay groundwater is the only source of water for human consumption and for industrial-agricultural economic activities. Traditionally considered as a safe source, groundwater is commonly used without any treatment. The Uruguayan law requires bacteriological (fecal) analysis for most water uses, but virological analyses are not mentioned in the legislation. In the Salto district, where groundwater is used for human consumption and for agricultural activities, bacterial contamination has been detected in several wells but no viruses analysis have been performed. The Republic University (UDELAR), with the support of the National Agency for Research and Innovation (ANII), is studying the incidence of virus and fecal bacteria in groundwater on an intensive agriculture area of the Salto district.

An initial screening campaign of 44 wells was performed in which, besides total and fecal coliforms, rotavirus and adenovirus were detected. A subgroup of the screening wells (15) were selected for bimonthly sampling during a year. In accordance with literature results, single well data analysis shows that coliform and viral contamination can be considered as independent variables. However, when spatial data is integrated, coliform and viral contamination show linear correlation. In this work we present the survey results, we analyse the temporal incidence of variables like precipitation, temperature and chemical composition in well contamination and we discuss the value of coliforms as global indicator of viral contamination for the Salto aquifer.