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### Detection and molecular characterization of enteroviruses in Al-Zarqa River, Jordan

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Al-Zarqa River is the second main tributary to River Jordan after Yarmouk River. The river flow has been modified by discharges of industrial wastewater and treated domestic water. Concerns about the presence of viruses in the surface waters of Al-Zarqa River prompted the analysis of virus occurrence in water environmental samples collected from and around the river. Viruses were concentrated from river water, raw sewage and treated domestic water samples. Calculated recovery yield for the concentration methods ranged between 2% and 8%. A total of 33 samples were examined for the presence of Enteroviruses (EVs) by means of RT-PCR and southern blotting hybridization. EVs were detected in 14 (42%) of the samples. The concentrations of EVs ranged between 6.3 and 3.3×10<sup>3</sup> pdu/ml with a mean of 2.5×10<sup>3</sup> pdu/ml in raw sewage. Molecular phylogenetic analysis of the 5' non-coding region sequences revealed the frequent detection of coxsackievirus B4 in Al-Zarqa River. EV serotyping and phylogenetic analysis enabled us to trace back the source of viral contamination in some samples.

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### Strategic Environmental Assessment (SEA) and Sustainable Development: Climate change perspective

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Climate change is global and of tremendous significance because the face of our planet is changing due to climate change. It affects population groups, all sectors and countries. It engages complex risks and requires specific solutions. The satisfactory reflection of climate change within strategic environmental assessment (SAE) is therefore seen as a great challenge. We need the acceptable solutions which are able to face the changing climate and this effort in this area mainly focused to reduce greenhouse gas emissions, to mitigate climate change. So, the integration of adaptation of climate change concerns into the planning process with the execution of SAE becomes more and more important. Sustainable development is a recognized vision for any kind of development but the fact is that how to reach the sustainable development process. SEA process is well-positioned to thoroughly help strengthen action of climate change adaptation and mitigation in planning as well as sustainable development. The purpose of the study is to describe the SEA may be an important tool to facilitate decision-making in respect of climate change and also the role of SEA towards sustainable development by adaptation and mitigation of climate change. The implementation of SEA is a challenging job in developing as well in developed countries. It needs continuous effort to recognize the obstacles and opportunities and to take action for addressing them. The findings reveal that the proper application of SEA in the policy, plans and programs can generate a way for sustainable development by global climate protection and climate adaptation. In all cases, SEA should consider definite institutional settings with the aim of capably adapt decision-making procedures and to ensure that it is not seen as a costly external instrument which make difficult development actions. Further research and possible ways ahead in creating a more climate change-enabled SEA.

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