

Title:	Isolation of Two Pathogenic Serovars of Salmonella from Municipal Solid Wastes at Yatta Landfill, WEST BANK, Palestine
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Landfill sites are potential bio-hazards as pathogenic microbes may find their way into water sources and, via agriculture or direct contact with humans, re-enter the human food chain. We found, in a previous study of municipal solid waste (MSW) arriving at the Yatta landfill site, which serves the Hebron and Bethlehem directorates, that food waste and faeces, from closed baby diapers, were found to contain Salmonella in abundance from all of the 9 source villages and towns surveyed¹. However, as the pathogenicity of Salmonella varies greatly depending on the exact serovar, and as some of the known serovars do not cause disease in man, a follow-up study was performed to characterize the Salmonella sp so as to provide a basis for better assessing the environmental health risk of these organisms in the MSW.

Abstract: In this study, we report the use of microbial selection and isolation, along with molecular techniques to provide species and serovar assignment of the Salmonella sp from solid waste samples, taken from the Yatta landfill site in order to better assess the degree of risk posed by the Salmonella in local MSW to humans.

Salmonella was successfully isolated on XLD agar plates from 11 different samples of food and feces from 6 distinct regions of Hebron and Bethlehem. A portion of the invA gene of each of these was amplified by PCR and sequenced. All the sequences were variants of two serovars: 9 were Salmonella enterica serovar Heidelberg and two were serovar Newport. Both of these serovars, and especially Heidelberg, have been implicated as important causes of public health concern throughout the world.

We conclude, therefore, that pathogenic serovars of Salmonella are widespread in the districts of Southern Palestine and are surviving in solid waste arriving at the landfill site, which thereby presents a hazard to refuse pickers and other workers on the landfill site, as well as the wider environment through leachate or the clothing of solid waste workers.

Keywords: solid waste; municipal solid waste; Salmonella; bacteria; Environment; public health; food waste; faeces