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PaperTitle # The Prevalence of Citrobacter Koseri and Other Coliforms in Raw Root Crops, Meat and Dairy Products

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ABSTRACT

Citrobacter koseri is an opportunistic pathogen causing serious illness in immuno-compromised neonates after intake of contaminated powdered infant formula (PIF). Very little is known about this emerging pathogen and where it occurs in the environment. For purposes of determining the incidence and numbers of C. koseri and other coliforms in different environments, samples were taken to examine plant products such as beetroot, carrots and potatoes; animal products such as raw meat and milk; and processed products such as whey powder and powdered infant formula.

Violet Red Bile Lactose Agar (VRBLA) was used to detect coliforms ((ISO 4832:1991) in the food samples. After counting, colonies were picked at random from the plates of each sample. Pure cultures were subjected to screening tests for possible C. koseri and then subjected to further identification using API 20E test kits. Identification of 314 isolates resulted in the following spectrum of organisms: Enterobacter sakazakii (17,5%), Serratia liquifaciens (16,6%), Serratia odorifera 1 & 2 (15,3%), Enterobacter cloacae (13,1%), Klebsiella oxytoca (6,4%), Escherichia coli (4,5%), Pantoea species (3,8%), Citrobacter koseri / farmeri (1,9%), and unidentified strains (21%).

The main conclusions are (i) that Enterobacter sakazakii was most frequently isolated, (ii) that root crops are a potential source of this organism, (iii) that Citrobacter koseri was seldom found and then only in potatoes (iv) that the hygiene of minced meat varied drastically between butcheries and (v) that oxidative, non-coliforms such as Pseudomonas and Chryseomonas were also found to grow on the VRBLA.

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