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Prevalence and control of Cronobacter sakazakii containing putative virulence genes

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Cronobacter sakazakii is an emerging food-borne pathogen that is associated with a number of infections in infants, neonates and immune-compromised individuals. It is associated with a number of life-threatening diseases like necrotizing enterocolitis, sepsis, meningitis, bacteremia, CSF infection, brain abscess and cyst formation. In the present study prevalence of *C.* sakazakii was investigated in dairy products of Agra city, India. Total 243 dairy product samples were analyzed in different seasons and a total of 480 isolates were obtained. These isolates were biochemically characterized and were further confirmed using 16S rRNA gene sequencing. The isolates were subjected to *in vitro* and *in vivo* pathogenicity testing. The presence of virulence associated genes was checked in these isolates and the effect of various stresses like acid, alkaline, heat, cold and desiccation was also studied on these isolates. qPCR based studies were conducted to check the expression of putative virulence gene under stressed and unstressed cells. A number of antibiotics and probiotics were tested to control these *C. sakazakii* isolates. Amongst antibiotics Ofloxacin, Piperacillin, Cefotaxime and Chloramphenicol were the most effective antibiotics and amongst probiotics *L. fermentum* and *Pediococcus acidilactici* were the most effective in controlling the *C. sakazakii* isolates.

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