

Plasmid profiles and randomly amplified polymorphic DNA analysis of *Salmonella enterica* serotype Enteritidis strains from outbreaks and sporadic cases in Turkey

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SUMMARY

The aim of the study was to investigate the characteristics of *Salmonella* serotype Enteritidis strains isolated from outbreaks and sporadic cases in Turkey by plasmid profiles and randomly amplified polymorphic DNA (RAPD) patterns. A total of 64 *S. Enteritidis* clinical strains were selected from the culture collection of the Enterobacteria Laboratory of Ankara University Medical School Department of Microbiology and Clinical Microbiology for molecular analysis using the plasmid profiles and RAPD method. Fifty-six isolates (88%) harbored one to four plasmids ranging in size from 2.5 to 100 kbp. 57 kbp plasmids were the most common plasmids, and forty-four strains (69%) carried 57 kbp plasmids alone or together with other plasmids. The outbreak strains carried the same plasmid profile: three plasmids sized 57, 40, 3.0 kbp. None of the strains analyzed displayed any RAPD bands with the primer OPB-17. By using primer p-1254, 42 strains (66%) were divided into fourteen RAPD patterns. Ten of the outbreak strains (77%) showed >80% similarity by cluster analysis program. Analysis of RAPD-PCR with primer p-1254 proved an easy, rapid and discriminative method complementing antibiogram and plasmid profiles in routine laboratories, and may contribute to the investigations of *S. Enteritidis* which still cause outbreaks in Turkey. This study presents the first report on *S. Enteritidis* isolates in Turkey investigated by plasmid profiles and RAPD methods.

KEY WORDS: *Salmonella* serotype Enteritidis, Plasmid profiles, RAPD, Turkey

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INTRODUCTION

Salmonella infections are a very common public health problem in Turkey and in many other parts of the world (Toreci *et al.*, 1991). *Salmonella enterica* often causes serious food-borne outbreaks as well as sporadic diseases. In Turkey, *Salmonella enterica subsp enterica* serotypes Typhi, Enteritidis and Typhimurium are three of the major serotypes that cause human infection.

During the last twenty years *Salmonella enterica* serotype Enteritidis has been isolated worldwide in increasing numbers (Rodrique *et al.*, 1990).

In Turkey, the rate of *Salmonella* serotype Enteritidis infections has been gradually increasing since 1992, and *S. Enteritidis* has become the most common *Salmonella enterica* serotype isolated from samples of patients with *Salmonella* gastroenteritis or extra-intestinal *Salmonella* infections (Erdem, 1995; Erdem *et al.*, 2005). In addition, there were many reports of outbreaks due to *S. Enteritidis* in Turkey since the beginning of 1990s (Aksoycan *et al.*, 1991).

Because of the increasing role of *S. Enteritidis* in *Salmonella* infections and outbreaks, subtyping of this serotype is important. Phage typing

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