

Production of Heat-Stable Enterotoxin by the O128 Serogroup of *Escherichia coli*

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Nine out of 11 *Escherichia coli* strains belonging to enteropathogenic O128 serogroup were shown to produce heat-stable enterotoxin. This property may be related to the pathogenicity of this serogroup of bacteria.

Production of heat-labile enterotoxin and heat-stable enterotoxin (ST), frequently implicated in diarrheas of humans (9, 12) and young domestic animals (7), has been reported to occur in several serogroups of *Escherichia coli* (10; D. P. Matos et al., unpublished data). However, the occurrence of these two kinds of toxins has seldom been demonstrated in classic enteropathogenic serotypes of *E. coli* associated with infantile diarrhea (3, 6, 11).

The aim of this communication is to describe the production of ST by strains belonging to the O128 serogroup of *E. coli*.

Eleven strains of *E. coli* belonging to serogroup O128, identified according to Edwards and Ewing (4), were isolated in São Paulo, Brazil, from children with diarrhea between February and November 1977. Nine of these isolates produced ST (1); none produced heat-labile enterotoxin (2). The ability to produce ST was retained by seven of the nine strains after storage for 1 year at room temperature on nutrient agar slants; the other two strains lost their toxigenicity.

The sources of the strains and the detection of three different flagellar antigens indicated that these strains are not epidemiologically related (Table 1).

One of the nine enterotoxigenic strains was found to produce mannose-resistant hemagglutination of human group A erythrocytes and to agglutinate with a specific antiserum prepared against the colonization factor CFAI (5) from *E. coli* TR 69-1, isolated from a case of infantile diarrhea (D. P. Matos, et al., unpublished data). The fact that this strain caused agglutination of human erythrocytes in the presence of D-mannose and was agglutinated by specific anti-CFAI antiserum indicated that it possesses the colonization factor CFAI previously described in other enterotoxigenic strains isolated from man (5; D. P. Matos et al., unpublished data).

TABLE 1. Sources and antigens of enterotoxigenic (ST) strains of *E. coli* serogroup O128 isolated from children with diarrhea

Strain	Source ^a	Antigen	
		Somatic	Flagellar
TR 22-4	CII	O128 a,c	H12
TR 44-2	CII	R ^b	H7
TR 9-8	HCSP	O128 a,c	H ^{-c}
TR 90-5	HCSP	O128 a,c	H12
TR 18-5	HCSP	O128 a,c	H21
TR 14-1	HCSP	O128 a,c	H12
TR 17-2	HCSP	O128 a,c	H21
EC 3	FCMC	O128 a,c	H21
EC 55	FCMC	O128 a,c	H21

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^b R, Rough; became rough after isolation.

^c H⁻, Nonmotile.

Production of ST enterotoxin by strains of *E. coli* of the O128 serogroup has been noticed by other authors (11, 13). The enterotoxigenic strains were all isolated from cases of diarrheal disease. These reports, associated with the recent demonstration that *E. coli* that produce only ST can cause diarrhea in humans (8) and with the fact that the *E. coli* O128 serogroup has been implicated in infantile diarrhea, suggest that production of ST by this serogroup bacteria may be a major factor in their pathogenicity.

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