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Structural analysis of the carbohydrate backbone of *Vibrio parahaemolyticus* O2 lipopolysaccharides

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A structural investigation has been carried out on the carbohydrate backbone of *Vibrio parahaemolyticus* O2 lipopolysaccharides (LPS) isolated by dephosphorylation, O-deacylation and N-deacylation. The carbohydrate backbone is a short-chain saccharide consisting of nine monosaccharide units i.e., 1 mol each of D-galactose (Gal), D-glucose (Glc), D-glucuronic acid (D-GlcA), L-glycerD-mannoheptose (L,D-Hep), D-glycerD-mannoheptose (D,D-Hep), 3-deoxy-D-manno-oct-2-ulosonic acid (Kdo), 5,7-diacetamido-3,5,7,9-tetradeoxy-D-glycerD-galacto-non-2-ulosonic acid (Non1A), and 2 mol of 2-amino-2-deoxy-D-glucose (D-glucosamine, GlcN). Based on the data obtained by NMR, FABMS and methylation analysis, the carbohydrate backbone of O2 LPS was characterized as nonasaccharide shown below. In the native O2 LPS, the 2-amino-2-deoxy-D-glucitol (GlcN-ol) at the reducing end of the nonasaccharide is present as GlcN and D-galacturonic acid, which is liberated from LPS by mild acid treatment or by dephosphorylation in hydrofluoric acid, is present although its binding position is unknown at present.

