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Evidences of exopolysaccharide production by *Helicobacter pylori* submitted to hydrodynamic stress

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Helicobacter pylori is a widespread Gram-negative bacterium that infects the stomach of humans leading to the onset of several gastric disorders, such as gastritis, gastric ulcers, and cancers. The transmission of *H. pylori* remains unclear but two different pathways have been suggested: faecal-oral and oral-oral. It has been reported that *H. pylori* has the ability to incorporate in biofilms formed on water-exposed surfaces thus providing a route of infection. On the other hand, a polysaccharide-containing biofilm has been observed at the air-liquid interface when *H. pylori* is grown in a glass fermenter[1]. Because exopolysaccharides (EPS) play a determinant role in bacterial adhesion by conferring protection against adverse conditions such as starvation and environmental aggressions, EPS production would be expected to be higher if the bacterium is exposed to water. In this work the capability of *H. pylori* to produce EPS when exposed to water and under hydrodynamic stress has been evaluated. *H. pylori* was inoculated in autoclaved distilled water and allowed to stand under gentle stirring at room temperature. The significant and continuous increase in the sugar content 192 hours after inoculation suggests the production of exopolysaccharides. This evidence is reinforced by epiflourescence microscopical observation of the bacteria stained with DAPI (4,6-diamidino-2-phenylindole) that revealed the presence of bacterial aggregates 318 hours after inoculation.

1. Stark, R. M. *et al.* (1999) *Letters in Applied Microbiology* **28** : 121-126.