

## Abstract

Pathogenic bacteria delay wound healing through several different mechanisms such as persistent production of inflammatory mediators or maintenance of necrotic neutrophils, which release cytolytic enzymes and free oxygen radicals. One of the most frequent pathogens isolated from infections in chronic wounds is *Pseudomonas aeruginosa*. This bacterium is extremely refractory to therapy and to host immune attack when it forms biofilms. Therefore, antibiotics and antiseptics are becoming useless in the treatment of these infections. In previous works, we demonstrated that *Lactobacillus plantarum* has an important antipathogenic capacity on *P. aeruginosa*. The aim of the present work was to elucidate the mechanism involved in the control of growth of *P. aeruginosa* on different surfaces by *L. plantarum*. For this purpose, we investigated the effects of *L. plantarum* supernatants on pathogenic properties of *P. aeruginosa*, such as adhesion, viability, virulence factors, biofilm formation, and quorum sensing signal expression. *L. plantarum* supernatants were able to inhibit pathogenic properties of *P. aeruginosa* by a quorum quenching mechanism. The antipathogenic properties mentioned above, together with the immunomodulatory, tissue repair, and angiogenesis properties in the supernatants of *L. plantarum*, make them an attractive option in infected chronic wound treatment.

Antipathogenic properties of *Lactobacillus plantarum* on *Pseudomonas aeruginosa*: The potential use of its supernatants in the treatment of infected chronic wounds

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