

P1430 **Inhibition of *Mycobacterium chelonae* and *Mycobacterium fortuitum* biofilms by *Methylobacterium sp.***

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Background: *Methylobacterium sp.* is usually isolated from water distribution systems. Its isolation in biofilms has been related to a lower presence of *Mycobacterium avium*. It has been shown that *Methylobacterium sp.* is able to inhibit *Mycobacterium abscessus* biofilm formation, affecting the thickness and the covered surface.

The aim of this study is to determine the effect of *Methylobacterium sp.* in the structure of *Mycobacterium chelonae* and *Mycobacterium fortuitum* biofilms.

Materials/methods: *M. chelonae* ATCC 19235 and *M. fortuitum* ATCC 6841 biofilms were developed using 2x4-well plates with an uncoated hydrophobic surface, incubated at 37° (80 rpm) for 96h. *Methylobacterium sp.* CECT 7805 was added in two forms (autoclaved bacteria (AB) and an extract obtained after sonication (EB)) at 24, 48 and 72 hours, leaving one well as a control (96 hours). The experiment was performed in triplicate using the protocol described by Muñoz-Egea et al (BMC Microbiol 4 February 2015; 15:18). The statistical data were analyzed by the non-parametric Kruskal-Wallis and Mann-Whitney tests with statistical significance of $p < 0.05$.

Results: Covered surface and thickness were significantly lower in both mycobacteria biofilms after exposure to AB and EB.

The maximum inhibition of the covered surface and thickness in *M. chelonae* biofilms was observed at 72 hours. In *M. fortuitum* biofilms these parameters were significantly reduced at 48 and 72 hours.

Statistically significant differences in thickness (in both mycobacteria biofilms) between AB and EB were detected at 24, 48 and 72 hours, being higher the reduction with AB.

Regarding the covered surface, no differences were found in both mycobacteria biofilms with AB and EB at 24 hours, but the reduction was higher with AB at 48 and 72 hours.

The percentages of dead bacteria were higher in *M. chelonae* biofilms with AB and EB at 48 and 72 hours. However, in *M. fortuitum* biofilms it was statistically significant at 72 hours with AB and after 48 hours with EB.

Conclusions: *Methylobacterium sp.* is able to reduce the covered surface and thickness of *M. chelonae* and *M. fortuitum* biofilms, especially AB. An increase of the percentage of dead bacteria appears in both mycobacteria biofilms, being higher in *M. chelonae* biofilms.