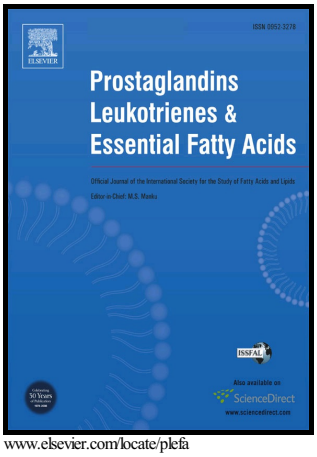


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# *Pseudomonas aeruginosa* produces aspirin insensitive eicosanoids and contributes to the eicosanoid profile of polymicrobial biofilms with *Candida albicans*

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ABSTRACT

The interaction of clinically relevant microorganisms is the focus of various studies, e.g. the interaction between the pathogenic yeast, *Candida albicans*, and the bacterium, *Pseudomonas aeruginosa*. During infection both release arachidonic acid, which they can transform into eicosanoids. This study evaluated the production of prostaglandin $E_2$, prostaglandin $F_{2\alpha}$ and 15-hydroxyeicosatetraenoic acid by biofilms of *P. aeruginosa* and *C. albicans.* The influence of co-incubation, acetylsalicylic acid and nordihydroguaiaretic acid on biofilm formation and eicosanoid production was evaluated. Acetylsalicylic acid decreased colony forming units of *P. aeruginosa*, but increased metabolic activity and eicosanoid production of the cells. In contrast to prostaglandin $E_2$, prostaglandin $F_{2a}$ production by *C. albicans* was insensitive to acetylsalicylic acid, indicating that different enzymes are responsible for their production in this yeast. Nordihydroguaiaretic acid inhibited biofilm formation by *P. aeruginosa*, however co-incubation provided protection against this inhibitor. Production of these eicosanoids could affect pathogen-clearance and infection dynamics and this previously uncharacterized facet of interaction could facilitate novel therapeutic intervention against polymicrobial infection.