

## Potential biofilm formation by yeasts and filamentous fungi isolated from orange juice processing lines

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**Sessão do trabalho:** Biofilmes na indústria de alimentos

### **Abstract:**

Fungal spoilage is a recurrent problem in the beverage industry, as the contamination may occur throughout the processing and due to their ability to colonize surfaces and to form biofilms together with other microorganisms. The objective of this work is to evaluate the of biofilm formation by filamentous fungi and yeasts isolated from orange juice processing industry. For this purpose, the yeasts *Wickerhamomyces anomalus*, *Naganishia diffluens* and *Candida intermedia* were used, as well as the mold *Paecilomyces variotii*; these were isolated from orange juice processing line and spoiled juices. Fungal strains were grown into 96-well plates and incubated for 24h. Crystal violet method was used to observe the attached cells, measured at 570 nm. To detach the biofilm from the wells, PBS was added and submitted to an ultrasound bath; the cells were then transferred into MEA medium for CFU count. The OD<sub>570nm</sub> values ranged from 0.02 to 1.02, for *Paecilomyces variotii* (AC72) and *Wickerhamomyces anomalus* (AC81), respectively. Five strains have shown OD<sub>570nm</sub> values above the positive control (0.32 ± 0.12), which demonstrates the potential to form biofilm, hence indicating the ability to contaminate orange juice throughout the processing line. Regarding CFU counts from single biofilms, the values ranged from 5.5 to 6.68 log CFU/mL, and 6 out of 10 strains have shown similar counts when compared to the controls (five strains of *W. anomalus* and one of *C. intermedia*). This study highlights the ability of strains to persist along the orange juice processing line and indicate that measures should be taken to control the presence of fungi in juice industry, in order to reduce losses related to spoilage and recalls.

**Keywords:** filamentous fungi, yeasts, biofilm, beverages, spoilage