

P1203 Does plastic composition of polystyrene trays have any impact in the study of *Candida* spp biofilm formation?

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Background: The ability of biofilm formation by *Candida* spp seems to have a role in the prognosis of the patient with candidaemia. Biofilm formation is usually tested using polystyrene, flat-bottomed 96-well microtiter plates but the type of plastic used is not commonly reported. We here compared the biofilm formation of *Candida* spp causing candidaemia on six different types of microtiter plates.

Materials/methods: We selected 30 isolates of each of the following species: *C. albicans*, *C. glabrata*, *C. parapsilosis*, *C. tropicalis* and 15 isolates of *C. krusei*, (n=135 isolates) obtained from patients with candidaemia admitted to Gregorio Marañón Hospital. Biofilm production was measured using the crystal violet staining assay (CV, biofilm biomass) and the XTT reduction assay (biofilm metabolic activity). Six different polystyrene 96 well-plates were tested, 3 non-tissue treated plates [NTA (Ref. 655161), NTB (Ref. CLS3370), NTC (Ref. NUNC243656)], and three tissue-treated plates [TA (Ref. 655180), TB (Ref. CLS3595), and TC (Ref. NUNC167008)]. Comparisons among the mean biomass and metabolic activity measured in each of the plastics studied were performed by *t*-student test.

Results: Overall biofilm biomass and metabolic activity were greater in non-treated plates than in tissue-treated plates ($P<0.001$) (Table). Significant differences were also found among non-treated [biofilm biomass ($P<0.001$); metabolic activity ($P<0.05$)] and treated plates [biofilm biomass ($P<0.05$); metabolic activity ($P<0.001$)].

Species	Non-tissue treated vs. tissue treated (mean)	
	CV	XTT
<i>C. albicans</i>	0.770 vs. 0.492	0.177 vs. 0.130 ^{ns}
<i>C. parapsilosis</i>	0.879 vs. 0.767	0.235 ^{ns} vs. 0.180
<i>C. glabrata</i>	0.295 vs. 0.131 ^{ns}	0.301 vs. 0.155
<i>C. tropicalis</i>	1.675 vs. 1.374	0.206 vs. 0.153
<i>C. krusei</i>	0.250 ^{ns} vs. 0.023	0.125 vs. 0.010 ^{ns}
Overall	0.832 vs. 0.617	0.221 vs. 0.142

^{ns}No significant differences among the three types of 96-well microtiter|

When individual species were considered, the biomass and metabolic activity were also higher in non-treated plates ($P<0.01$). Significant differences were found in biomass production among all non-treated plates in *C. albicans*, *C. parapsilosis*, *C. glabrata*, and *C. tropicalis* ($P<0.05$), and among all treated plates in *C. albicans*, *C. parapsilosis*, *C. tropicalis* and *C. krusei* ($P<0.05$). In terms of

metabolic activity, significant differences were found between all non-treated plates in ($P < 0.01$) in *C. albicans*, *C. glabrata*, *C. tropicalis* and *C. krusei*, and between treated plates in *C. glabrata*, *C. parapsilosis* and *C. tropicalis*.

Conclusions: Biofilm formation and metabolic activity was significantly impacted by the plastic composition with non-tissue treated trays leading to a higher biofilms formation.