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BT-P05.
SOL-GEL NANOSTRUCTURED ANTIBIOFILM GLASS SURFACES
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Various types of surfaces in clinical or industrial settings are prone to unwanted biofilm generation. In order to prevent the large doses of antibiotics that are required to eradicate them, superhydrophobic surfaces are being developed as alternative. These surfaces are shown to prevent contact between a bacterium and surface attachment points and they are generally made from a low energy material with a highly developed microstructure, some incorporating two different length scales in this roughness.
In this work, we describe a simple method to fabricate superhydrophobic sol-gel nanostructured glass coatings to control bacterial adhesion. These surfaces were manufactured by coating glass slides with a mixture of Aminopropyl trietoxysilane and Tetraetoxysilane in order to functionalize the surface with amino groups. Then, two different sizes of silica particles: nanoparticles (NPs: 27 nm) and microparticles (MPs: 2 μm) were also functionalized with NH_2 groups and attached to the surface by glutarahaldeyde crosslinking. The effect of different proportions of the particles was studied (0:100, 25:75, 50:50 Mps:NPs). Finally, the surfaces were treated with dodecenyl succinic anhydride in anhydrous ethanol (1/10, 1/100, 1/1000). Surfaces hydrophilic/hydrophobic behavior was analyzed by means of contact angle and inhibition of biofilm formation by exposing the surfaces to *Pseudomonas* spp.

BT-P06.
SCLEROGLUCAN PRODUCTION BY *Sclerotium rolfsii* ATCC 201126: INFLUENCE OF THE CARBON SOURCE
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Scleroglucan is a ß-D-(1,3)-(1,6)-glucan produced by *Sclerotium rolfsii* ATCC 201126. This neutral water-soluble exopolysaccharide (EPS) was produced by submerged culture in MP_{20} liquid medium (sucrose: 20 g/L; initial pH: 4.5). The influence of 9 different simple and complex carbon sources on scleroglucan, biomass and oxalic acid production was evaluated. Batch fermentation processes were carried out in Erlenmeyer flasks at 30ºC and 250 rpm during 72 h. Higher EPS production (7 g/L) was obtained with sucrose and maltose as C-source. Biomass was significantly increased with maltose (~9 g/L) and soluble starch (9.6 g/L). Variable concentrations of oxalic acid were observed depending on the C-source used. The possibility to select appropriated culture conditions for *S. rolfsii* ATCC 201126 according to the product of interest was demonstrated. Additionally, biomass and EPS production obtained with molasses as C-source would allow to propose the use of low-cost substrates for the production of high-added value metabolites.

BT-P07.
***Sclerotium rolfsii* SCLEROGLUCAN: EFFECTS OF THERMAL, ALKALINE AND ULTRASONIC DEGRADATION**
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Scleroglucan is a neutral water-soluble ß-1,3-ß-1,6-glucan produced by *Sclerotium rolfsii* ATCC 201126 whose triple helical conformation can be turned into single coiled chains at high pH or temperature and/or in DMSO. Effects of thermal (65, 95 and 150ºC), alkaline (0.01-0.2 N NaOH) and ultrasonic (1, 5 and 10 min with 20% amplitude) treatments onto the solution properties of *S. rolfsii* scleroglucans (EPS I, EPS II and EPSi at 0.2% w/v) were comparatively evaluated vs. commercial scleroglucan (LSCL). The more drastic assayed conditions (150ºC, 0.2 N NaOH and 10-min ultrasonication) significantly modified the rheological behavior of scleroglucan solutions, with an abrupt decline in apparent viscosity and the loss of pseudoplastic behavior. EPS I was identified as the less sensitive polymer to thermal degradation, whilst EPSi and LSCL were particularly susceptible to alkaline treatment but the more stable ones against ultrasonication. Scleroglucan samples were all denatured (triple helix —› single brand transition) at 150°C and 0.2 N NaOH. Additionally, size exclusion chromatographic (SEC) profiles of control and treated polymer samples revealed aggregates, single chains and triple helices distinctive zones in accordance with the applied treatment.

BT-P08.
CONFORMATION AND STRUCTURAL COMPACTION OF SCLEROGLUCAN BIOPOLYMERS AS WITNESSED BY FRET SPECTROSCOPY
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Scleroglucans from *Sclerotium rolsfii* ATCC 201126 produced at fermenter scale and ethanol recovered at different times (EPS I: 48 h and EPS II: 72 h) did not exhibit significant variations in MW, degree of polymerization or branching, and adopted a triple helical semirigid structure in aqueous neutral solution. However, they showed certain differences in rheological behaviour, anti-syneresis, emulsifier and suspending properties, hydrogel microstructure and their ability to activate LAL and Glucatell coagulation tests. That may be related to different conformational features such as the triplex expansion degree, which tried to be assessed by fluorescence resonance energy transfer (FRET) spectroscopy. Alkali denaturation of EPSs and subsequent renaturation events over time were evaluated by FRET. EPSs double-labelled with a donor/acceptor fluorophores pair (AP/FITC) were treated with increasing NaOH concentrations (0.015-1.0 M) and a gradual partial opening of the triple-helix rather than a complete strands separation was observed. An isopropanol-processed scleroglucan, EPSi (recovered at 72 h), and a commercial scleroglucan LSCL, also exhibited a similar behaviour. FRET results suggested a decreasing triplex compaction degree as follows: LSCL > EPS I > EPS II > EPSi. Renaturalization showed that even without neutralization the triple-helix conformation could be restored after 96 h.