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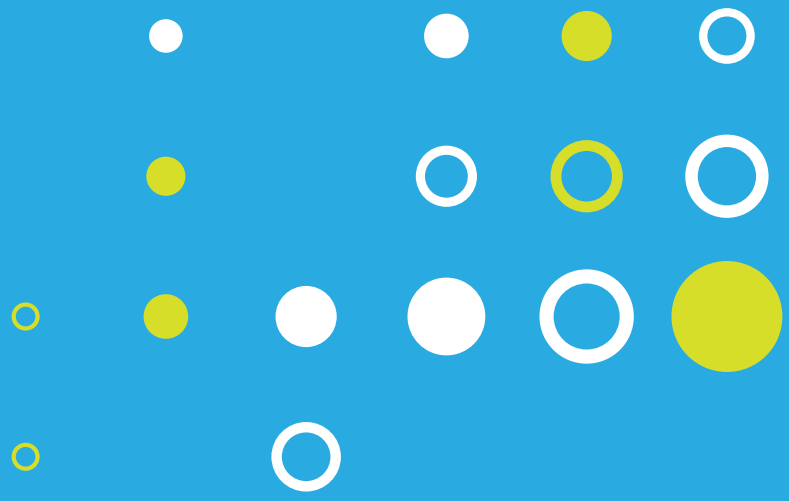

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**BT-P01.**
**PRODUCTION OF EXTRACELLULAR EMULSIFYING AGENT BY *Streptomyces* SP. MC1**

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Emulsifiers of microbial origin have significant implications in the biological treatment of pollutants from environmental. They are employed in mechanisms for hydrocarbon and inorganic pollutants bioremediation, including heavy metals. *Streptomyces* sp. MC1 isolated from sugar cane, showed significant capacity to reduction of Cr(VI) to Cr(III) in minimal medium supplemented with sulphate or phosphate. The aim of this work is to evaluate now the effect of sulphate and phosphate ions, either in presence and absence of Cr(VI) on emulsifier production from this strain. Cells of *Streptomyces* sp. MC1 were grown in liquid minimal medium either with or without 20 mg/L of $K_2Cr_2O_7$ as Cr(VI) source, and different concentrations of $Na_2SO_4$ or $K_2HPO_4$ (5 to 20 mM). Cultures were incubated at 30ºC in orbital shaker at 170 rpm. Emulsifiers production was monitored using kerosene as water-immiscible substrate. After 48 h of cultivation, only in presence of phosphate ions it was detected the emulsifier production in supernatant of this strain, with a highly-stable emulsion. However, supplementation of Cr(VI) to the minimal medium inhibited the emulsifier production. Results presented here may have important implications in bioremediation of hydrocarbon and inorganic pollutants. Therefore, optimization of studies for emulsifier production could be required for future applications.

**BT-P02.**
**STABILITY OF BUDDED VIRUS OF BACULOVIRUS IN SERUM-FREE MEDIUM**

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Biotechnology applications of baculoviruses are constantly expanding. Any of these applications, from biopesticides to vectors in gene therapy, requires the proper production and preservation of high-titer stocks of budded virus (BVs) in serum-free culture medium. It has been described that frozen baculovirus storage in serum-free media is less efficient than in culture media added with serum, but the causes are unknown. The stability of BVs of the baculovirus AgMNPV was evaluated in a serum-free medium under different conditions of lipid supplementation, freezing and thawing, and exposure time to the production temperature (27°C), employing a $2^3$ full factorial design in duplicate. The time of exposure to 27°C, as wells as the freezing and thawing of samples, did not affect significantly the stability of BVs. However, it was strongly altered by the presence of lipids in the culture medium: the mean titer of samples preserved in medium supplemented with lipids was almost 4 times lower than the mean titer of samples stored in lipids-free medium. The deleterious effect of the lipids was magnified when BV samples were frozen and thawed: more than 90% of the mean viral infectivity was lost when samples supplemented with lipids were frozen and thawed. These results strongly suggest that the reduced stability of baculovirus BVs in serum-free media is associated to the presence of lipids.

**BT-P03.**
**REMAZOL BLACK DECOLORATION BY *Burkholderia cepacia* IMMOBILIZED IN SOL-GEL SILICA MATRICES**

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Among many pollutants, textile industry effluents are the major source of environmental pollution. Synthetic dyes are widely used in the textile, pharmaceutical, cosmetic, and food industries. These effluents are a serious concern because of their adverse effects on many organisms and ecosystem as a whole. Even small concentrations of dye are highly visible and can be toxic to aquatic organisms. Azo dyes are the largest and most versatile class of dye but due to their chemical properties, they are not easily degradable under natural conditions and thus, are not thoroughly removed from water by conventional wastewater treatment systems. In this work we propose the use of sol-gel silica matrices obtained from sodium silicate to immobilize *Burkholderia cepacia*, a Remazol Black (RB) decolorizing bacteria. The advantages of bacteria immobilization are the possibility to recycle the beads, protect bacteria and reduce their presence in the resulting fluid. Bacteria were cultured aerobically at 35ºC in aqueous solutions of RB at concentrations from 1% to 0.005%. RB was measured directly by absorption at 597 nm. Immobilized *B. cepacia* was resistant to 2% of RB. It also reduced more than 80% of RB within 24 hs when 0.005% was added. Further studies are being performed to estimate the reutilization and half-life of the immobilized bacteria.

**BT-P04.**
**INTERACTION OF SILICA AND BETAMETHASONE LOADED SILICA NANOPARTICLES WITH MONOCYTES**

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Silica nanoparticles (SiNP) were investigated for their potential use as a novel drug carrier for targeted and controlled release of drugs. Betamethasone is a potent glucocorticoid steroid with anti-inflammatory and immunosuppressive properties. In this work betamethasone was encapsulated into monodisperse dense amorphous silica nanoparticles, to be used as a drug delivery system for the treatment of inflammatory and autoimmune diseases. SiNP were prepared via base-catalyzed hydrolysis and polymerization of tetraethyl orthosilicate under sterile conditions using ammonia (Stöber process), dialyzed and characterized before use. SiNP sizes were determined by dynamic light scattering (310 nm). In vitro studies were conducted on monocyte cells cultures for 24 and 48 h with culture media, free drug (20 µg/ml), betamethasone loaded SiNP (1 µg/ml) or SiNP without drug as controls. SiNP did not induce any morphological change in monocytes after exposure. Cell proliferation (evaluated with the MTT test of tetrazolium reduction) is not affected in the presence of free betamethasone, while SiNP significantly stimulate monocytes proliferation. This stimulation was effectively inhibited by betamethasone loaded SiNP. These results suggest that SiNP could be used as drug carrier, although several factors such as size and charge of the SiNP must be further analyzed.