DESENVOLVIMENTO DE NOVOS BIOMATERIAIS PARA REGENERAÇÃO ÓSSEA GUIADA

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O objetivo desse estudo foi desenvolver biomateriais em forma de pó particulado e de membrana para regeneração óssea guiada, bem como comparar a membrana produzida por eletrofiação com uma membrana de colágeno comercialmente utilizada. O biomaterial particulado foi obtido e avaliado na forma de quitosana, bem como dos complexos quitosana/ASAP e quitosana/ASAP/β-TCP. As partículas foram caracterizadas por Espectroscopia no Infravermelho por Transformada de Fourier (FTIR) e tamanho e potencial zeta. Foi realizado o ensaio de viabilidade celular brometo de 3-(4,5-dimetiltiazol-2-il)-2,5-difeniltetrazolio (MTT), colorações das células vivas com fluoresceína diacetato (FDA) e ensaio nuclear com 4',6'-diamino-2-fenil-indol (DAPI). As membranas foram desenvolvidas pelo método de eletrofiação, onde a membrana de policaprolactona (PCL) 14% p/v foi tratada com ASAP 300µg/ml. Esses materiais foram caracterizados por ângulo de contato e foi realizada análise de viabilidade celular (MTT) e de coloração com FDA. A análise estatística foi realizada por ANOVA, pelo teste Post Hoc Bonferroni. Os resultados do FTIR sugerem que houve processo de complexação entre quitosana e ASAP. O valor médio do tamanho das partículas no grupo complexo quitosana/ASAP/β -TCP foi de 416,2 nm, o grupo apenas quitosana foi de 465,5nm, o grupo de quitosana/ASAP 784,6 nm, o grupo β-TCP 233,1 nm e o grupo ASAP 62,67 nm O potencial zeta demonstrou a boa estabilidade do biomaterial particulado experimental. Na avaliação da viabilidade celular, pode-se observar biocompatibilidade e bioatividade dos biomateriais particulados quitosana/ASAP/β-TCP e quitosana/ASAP. A adsorção de ASAP na membrana com PCL aumentou sua hidrofilicidade. Em termos de viabilidade celular, todas as amostras foram biocompatíveis e a viabilidade celular das membranas foi comparável com as membranas de colágeno. Sendo assim, o complexo quitosana/ASAP/β-TCP e a membrana com ASAP adsorvido são biomateriais promissores para a regeneração óssea guiada. Entretanto, são necessários mais estudos para aplicação clínica destes biomateriais.

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