CHAPTER V

CONCLUSIONS

In this works, nylon-chitin composite membranes have been prepared by 2 different methods the first is solution casting method by blending with nylon and chitin. The second method is coating by immersing into chitin solution followed by DBD plasma. SEM images show that chitin molecules can penetrate into nylon surface structure of nylon-chitin membranes and chitin coated on nylon mesh. The crystallinity tends to decrease and does not change because the DBD plasma technique was a suitable process to enhance the coating capability of the membranes, whereas the bulk properties were remain. while the thermal decomposition of nylon-chitin has much faster than un-chitin one. At the same time, the mechanical properties of membranes and mesh composite maintain rarely decreasing of tensile strength that form low compatibility cause from viscosity effect for the surface modification of nylon-chitin membranes and chitin coated nylon mesh were operated via DBD plasma in air. the results show that the hydrophilicity of nylon-chitin membranes was increased due to the incorporation of oxygen-containing polar groups, including carbonyl group (C=O) and more chitin adding that slightly improve hydrophilicity of membranes by moisture absorption. Cell culture test results indicate that adding chitin content has much better biocompatibility than un-adding. Thus, the prepared nylon-chitin membranes are bioactive and maybe suitable for cell adhesion/attachment suggesting that these scaffolds can be used for wound dressing or tissue-engineering scaffolds.