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Plant-derived oxidized nanofibrillar cellulose-chitosan composite as an absorbable hemostatSun-Young Lee¹, Jae-Gyoung Gwon¹, Mousumi Sukul² and Byong-Taek Lee²¹National Institute of Forest Science, Republic of Korea²Soonchunhyang University, Republic of Korea

In this study, a new absorbable hemostat was developed with two most abundantly found natural polymers. Oxidized Nanofibrillar Cellulose (ONFC)-chitosan (Ch) sponge was prepared by lyophilization at a volume ratio of 50:50. Cytotoxicity and cell proliferation studies revealed that the sponge was non-cytotoxic and the cell proliferated continuously on the sponge. ONFC-Ch sponge showed better hemostatic effect on hepatic trauma than ONFC sponge. Both sponges were implanted on hepatic trauma for 1 and 3 weeks. ONFC-Ch sponge showed greater degree biodegradability and biocompatibility. Thus, ONFC-Ch sponge can be considered as a potential hemostatic material. An oxidized nanofibrillar cellulose-chitosan sponge was prepared by lyophilization as a biomaterial for hemostasis. The pore size distribution of the sponge supported cell ingrowth. Increased cell proliferation over time indicated that the sponge was biocompatible and non-toxic. Hemostatic ability was significantly higher in the ONFC-Ch sponge. The *in vivo* results indicated that the ONFC-Ch sponge offered superior biodegradability and biocompatibility. These findings suggested that the ONFC-Ch sponge holds potential as a surgical hemostat.

Biography

Sun-Young Lee has obtained his BS in Forestry from Korea University and MS in Forest Products (Paper Science and Engineering) from University of Washington. He has further received his PhD of Forest Products from Louisiana State University. Then, he has worked as a Senior Researcher in National Institute of Forest Science. His specialized research areas are nanocellulose applications and polymer composite materials. He has published over 100 papers in international journals and owned 30 international and domestic patents.

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