

Cracow University of Technology

## 13-NATURALLY DERIVED BLOOD CLOTTING AGENT

*Blood clotting, or hemostatic, agents are a medical necessity to prevent bleeding after injury or during surgery. Currently available hemostatic agents are limited in their utility (e.g. poor shelf-life, toxic side-effects) or come from animal sources. This hemostatic agent is derived from a biopolymer found in fungi. It has exceptional blood-clotting activity, is antimicrobial, and biocompatible.*



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Chitosan is a biopolymer found in nature that is known to have blood clotting activity. However, there are some limitations to the use of chitosan, one of which is that it is unstable (degrades easily) in water. Secondly, the most common source of chitosan is from shellfish. Even when purified, there may be contaminants from the shellfish that present a major allergenic risk. This research team has isolated chitosan from a non-animal source of fungi, and furthermore modified the structure of the biopolymer to make it more stable. The resulting product has excellent blood-clotting activity and, in addition, is antibacterial and biodegradable. This biodegradation feature is especially important as many other hemostatic agents need to be removed after use, which can be difficult in the case of surgery. As well as being used in surgical applications, the product is simple enough to be used by individuals as well. It would be the perfect addition to a first-aid kit, as the product is produced in a granular form that can be applied through a syringe, or in the form of patches for more superficial wounds. In both injury and surgery, preventing blood loss saves lives. Taken together, this hemostatic agent is a safe, effective, and easy to use product for saving lives.

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