

Abstract Submitted
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Electrospinning of Biodegradable and Biocompatible Nanofiber Patches from Solutions of "Green" Materials for Plant Protection against Fungi Attack SOUMYADIP SETT, MINWOOK LEE, ALEXANDER YARIN, Univ of Illinois - Chicago, S.M. ALAVI MOGHADAM, MATTHIAS MEINKE, WOLFGANG SCHROEDER, Institute of Aerodynamics, RWTH Aachen University — Biodegradable and biocompatible soy protein/petroleum-derived polymer monolithic fibers containing adhesives were electrospun on commercial rayon pads. The polymers used, PVA and PCL, are widely used in the biomedical industry, including such applications as drug delivery and scaffold manufacturing. Soy protein is an abundant waste of SoyDiesel production, and is widely used as a nutrient. The soy content in our fibers was as high as 40 %w/w. Four different adhesives, including ordinary wood glue, repositionable glue and FDA-approved pressure-sensitive glue were used for electrospinning and electrospraying. The normal and shear adhesive strengths of the patches developed in this work were measured and compared. The adhesive strength was sufficient enough to withstand normal atmospheric conditions. These biodegradable and biocompatible nano-textured patches are ready to be used on prune locations without being carried away by wind and will protect plants against fungi attack at these locations, preventing diseases like Vine Decline.

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