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(54) PLANT PROTEIN-BASED TRIBOELECTRIC NANOGENERATOR (TENG), AND FABRICATION METHOD AND USE THEREOF

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(57) **ABSTRACT**

A plant protein-based triboelectric nanogenerator (TENG), and a fabrication method and use thereof are provided. The TENG includes a triboelectric negative layer and a protein film, where the protein film and the triboelectric negative layer are stacked surface-to-surface; and an electrode is adhered to or plated on a back surface of each of the protein film and the triboelectric negative layer, or only a back surface of either of the protein film and the triboelectric negative layer is provided with a grounded electrode. A protein powder is dissolved in water or an ethanol aqueous solution, then a plasticizing agent is added, and the protein is denatured through thermal treatment to obtain an extended structure required for film formation; and the solvent is evaporated, and a resulting product is dried to obtain the protein film with uniform texture and excellent transparency and flexibility. The TENG is used in crop growth.