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(54) **AUTOMATED SYSTEM AND METHOD FOR HARVESTING AND MULTI-STAGE SCREENING OF PLANT EMBRYOS**

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See application file for complete search history.

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(57) **ABSTRACT**

A method and system for automatically harvesting and screening plant embryos in multiple stages to identify those embryos that are suited for incorporation into manufactured seeds are provided. The method includes generally three steps. First, plant embryos are automatically sorted according to their rough size/shape and also singulated into discrete embryo units, for example by vibrational sieving. Second, the sorted and singulated plant embryos are classified using a first classification method. For example, each embryo may be imaged by a camera and the image is used to ascertain the embryo's more precise size/shape. Third, for those embryos that have passed the first classification method, a second classification method is applied. For example, a pre-developed classification algorithm to classify embryos according to their putative germination vigor may be applied to the same image used in the first classification method, to identify those embryos that are likely to germinate.

11 Claims, 4 Drawing Sheets

