

Title Automated cutting system to obtain the stigmas of the saffron flower
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Abstract

This work presents a new system or machine for automated cutting of saffron flowers in order to obtain their stigmas. The conceptual design of this machine together with an efficient implementation is described. The key point of the invention is the use of a vision system to obtain, using image analysis, the optimal cutting point. An effective and flexible computer program processes the flower image and sends the computed value to a driver that positions a simple mechanical cutting system to make a clean cut of the saffron flower. A prototype machine is used for experimentation in order to validate the proposed approach. In particular, the tests show that the method was robust with a high percentage success in flower cutting regardless of the shape and size of the flower, the flower transporter velocity, the flower orientation (upward/downward), etc. An important benefit of the proposed automated cutting system is that the flower cutting rate is increased approximately eight times over that obtained with the traditional hand method.