



314/C

Preliminary study on automatic detection of Malitha flower

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Traditional practices of medicine use a lot of herbs for ailments in Sri Lanka. Hence, promoting these medicines is a pathway to heal many diseases causing fewer side effects. Malitha is one of the herbs used to prepare Ayurvedic medicine in India and Sri Lanka. The dried Malitha flowers are used for fermenting of medicinal wine. The quality of the imported raw material is not known since these ingredients are usually imported from India. The new trend of developing the end product will limit the exportation of raw material in future. Hence it is advisable to cultivate these types of herbs in Sri Lanka.

Malitha is a small flower. The size of the flower is 9-15mm. Thus identification of maturity of the Malitha flower and shortage of labour are the main constraints. Hence, the main aim of this study is to suggest a mechanism to identify the matured flower for the picking process. "Object detection" is the ability to distinguish an object from the background. Sensor based detection and image processing are two methods adapted for object detection. Recently image processing techniques have been proven to be an important tool for analysis in different fields and applications. Image processing in agriculture has been applied in the areas of sorting, grading, detection, and counting the products. Sensor based detection is more complicated, because of the ambient light and foliage. The ambient light can change throughout the day, therefore one needs to shield the sensors from this light. However, image processing has several techniques to reduce abrupt light effects in environment. Image segmentation is the first step in flower detection. There are several techniques and algorithms to perform the segmentation in the digital images. The region based segmentation method segments the image on the basis of low-level features of image color, texture and intensity. JSEG (J value based segmentation) has been shown to be more accurate in identifying nature properties. Therefore, it is convenient for detection of matured Malitha flower using JSEG technique. Finally, integrating this result with picking system will assist to pluck the matured Malitha flower.

Keywords: Image processing, JSEG technique, Malitha flower, Nature properties

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