A calcium carbide detecting mobile application system

Background

In recent years, the ripening agent usage for ripening of climacteric fruits is popular among retailers. Out of many ripening agents calcium carbide usage is more popular due to low price and high availability in the local market. But its use is being discouraged worldwide due to associate dangers in carryover of toxic materials like arsenic and phosphorous. Therefore this new invention is to introduce user-friendly digitalize mobile based detection system to selectively identify the calcium carbide. When the mobile phone capture the image of fruit samples in supermarket, image is analyzed and results given as a ripened by calcium carbide application or naturally.

Technical Problem

The ripening process takes few days and this period seriously limits its commercialization in distinct markets. Therefore, to overcome these constraints, fruits are artificially ripened by using artificial ripening agents. Calcium carbide is the most popular chemical for fruit ripening due to its low price and availability in local market. But its use is being discouraged worldwide due to associated dangers of explosion and carryover of toxic materials like arsenic and phosphorous. Other thing is higher quantities of calcium carbide require for fruit ripening and as a result of it ripened fruits are tasteless. According to health officials, the consumption of banana ripened using calcium carbide leads to various harmful effects like vomiting, diarrhoea, ulcers of throat and abdomen, general weakness, and sometimes damage of eye permanently and breathing shortness. To avoid such kind of ill effects the consumers have to be careful in buying artificially ripened fruits which is difficult with human eye observation. There is no significant user friendly accurate and broad spectrum method to detect the calcium carbide applied banana cultivars available in the market.

Technical Solution

This attempt is to make a user-friendly mobile based system to detect the calcium carbide applied different types of banana cultivars available in the market easily. This carbide detecting system is comprising set of images which belongs to color pattern changes in the maturity index of banana during the natural ripening and artificial ripening by the calcium carbide application. When they are calcium carbide applied this devise has ability to identify 10 ppm to 100

ppm calcium carbide applied banana ripening patterns of all the available banana varieties in Sri Lankan market.

Advantageous effects

The mobile based calcium carbide applied banana detection system is a user-friendly, rapid, inexpensive digitalized system embedded with huge network through the API system. Therefore, it will easily link with viewers suggestions. Once scan the market available banana in the market, it will compare with the images in naturally ripened category and artificially ripened category pictures and retrieve accurate results considering different aspects. Program algorithms are written to consider many aspects to give final results in most accurately at 93 % - 95 % range.
The detection system consists with the database which has number of clear images of ripening color patterns which can identify calcium carbide applied any edible banana cultivars belong to ten edible banana species in Sri Lankan markets. It has ability to identify ripening way of ten edible banana cultivars as ambul, seeni, kolikuttu, suwendel, puwalu, rath kehel, anamalu, embon, bin kehel, and nethrapalam.

Industrial Applicability

A calcium carbide detecting mobile application system can selectively identify the calcium carbide applied edible banana cultivars in the market from the non-calcium carbide applied banana samples with a high sensitivity due to the expanded data set of the different calcium carbide concentrations applied different banana cultivars in the different ripening stages as unripe, early ripe, partially ripe, ripe and over ripe stage.

USJ has already filed the Patent for this technology.

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