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GOBAL DIGITAL AGROFORESTRY WITH INNOVATION OF I-OP WORLD

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Abstract

In the utilization of more accurate indicators obtained from the research like color of peels and content of the fruit, the amount of soluble solids, titrate acid content, firmness of both peel and fruit content and TSS / TA values, the method of indicator measurement can be included in one step of both innovations. In the same case of research to innovation, a significant sample of the copyright innovation is Organic Playground (OP) that can grow organic mangos and plant biodiversity being proper quality and a lot of market demand. The innovative OP are also the new green agro-tourism and the public learning center.

Keyword : Global Digital, Agroforestry , Innovation , i-OP

Introduction

The economic development of the country and the world must be carried out in conjunction with appropriate sustainable development must be conducted through research and development with intellectual property (IP) to move sustainable development goal (SDG) innovation with learning participation at the family, community, social, national, and global levels. A significant sample of the IP innovation is “Digital Organic Playground to World” called “i-OP World” as new farming business organic biodiversity agroforestry to global marketing demand network and green fun active learning at onsite and global online. The innovative i-OP World can be agro-tourism ecosystem using just small area use and the public environment learning center with virtual farming about cases of biodiversity conservation, circular implementation for agro local plantation.

Content

The i-OP World agricultural products produced for domestic consumption and to delivery to global farmer role on the i-OP World platform as “Global digital farmer”. The rice and fruit diversity across country have a relatively high economic value. In case of IP of the diversityThai young rice leave producing from the different i-OP World across Thailand, consist of benefits of health agents as Betaglucan and Antioxidant. Therefore the leave can be health food and drink products and being ingredient mixed for many product for health value added, it is used as a case study in learning and understanding of research in creating agricultural innovation. The i-OP World and the Thai young rice leave products researched on applied research and fundamental research that can be integrated together in the different areas.

The sustainable utilization of biodiversity and local knowledge for sustainable tourist attraction development by using the participation of the community, tourists, and relevant departments. As for the measures, plans, and guidelines, there are ecological strategies, participation, marketing promotion, and the promotion for tourism development.

Thai fruits are agricultural products that are extremely important both for domestic consumption and for export to foreign countries. One of the most popular Thai fruits is mangoes, which have a relatively high economic value. Therefore, it is used as a case study in learning and understanding of research in creating agricultural innovation. The research includes both applied research and fundamental research that can be integrated together in creating innovations related to the development of mango quality preservation and can be a

case study in applying research methods to creating innovation in other cases of agriculture and in other different areas.

Applied research on mangoes in steam roasting of A grade Mahachanok mangoes reveals that obtained ripe mangoes provide overall amount of soluble solids, less acid titration and the period to be mature fruits not quite different from those in control group at the temp of 25ºC. However, storing mangoes at 13ºC through steam roasting helps slowing down the maturation period 2 times longer than the conventional storage at 25ºC in the period of 7.3 days which is not quite different from those in control group in the period of 6.3 days. B grade mangoes passed steam roasting process lose more weight, having skin of peels that turns to yellow more slowly. And the content of ripe fruit provide higher amount of acid titration and total soluble solids less than those in control group.As for other qualities, such as firmness, total amount of carotenoids and vitamin C, these are not different from those in control group.

As for immersion of mango fruits into hot water, all treatments reduce weight loss when storing the fruits at 25ºC. And for immersion in hot water at 50ºC for 20 minutes, this causes mango peel skins to turn into yellow color more slowly during storing (Ubon Chinnawang et al, 2018)

In addition, there are researches on the efficiency bio-fermentation of garlic, galangal, lemongrass and including herb complex from these 3 plants, as well as extracts of herbal waste and bio-surfactants produced from yeast, in the inhibition of fungal pathogens in Nam Dok Mai mango to be selected as an ingredient in the coating of the peels of mango fruit.

The results in the isolation of fungi from mango fruits, leaves and stems in 10 isolation treatments find that the most pathogenic fungi that causes problem is Colletotricum sp. And for research in testing the effectiveness of antifungal agents, the results reveal that the bio-fermentation of garlic has the best effect on fungal destruction when testing with Poisoned food technique.

And mango fruits coated with anti-mold biocompatible film help prolong the deterioration for up to 8 days when curing at room temp comparing to the control group that is applied with and without coating. These results indicate that biological coating substance that contains garlic fermented water, garlic extract and bio-surfactants from yeast provide best efficacy in inhibiting fungi which can be applied to extend the life, and improve the quality of Nam Dok Mai mango (Uraiwan Khamkliang et al.,2018)

However, the application of fundamental research results is important as for this case. For example, in the research on factors that are related to the maturation period which include colors of both peel and content mango fruit, the amount of soluble solids, the titrate acid content, the firmness of both peels and content of the fruit, and the TSS / TA values, the results indicate that using variables of firmness of the whole peel along with the TSS / TA values can help classify the maturation periods into 3 groups from raw, ripe and over-ripe with the accuracy of 91.7% (Charuwat Rojanaphatarakun and Sirichai Kalayarat , 2002)

The above sample cases both applied research and fundamental research can be used as reference data for development as agricultural innovations, both process innovation and product innovation like the research of Nam Dok Mai and Mahachanok mangoes growth in Thailand, in this paper. Such application of the results of research can be like , development of new innovation the process, storage procedures for maintaining quality of mango fruits to last longer up to 8 days by storing at the temp of 25ºC and by immersion into 50ºC hot water for 20 minutes. And the extension of application can be also the innovation of bio-mango coating substances mixed with garlic fermented water, garlic extract and bio-surfactants from yeast which are effective in inhibiting fungi for quality preservation of Nam Dok Mai mango. Both examples of innovation can be used as indicators for the level of ripeness to indicate the storage efficiency and market demand as well.

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