FFTC Research Highlights

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Protechnique of processing flavoured teas using chun mee and sow mee green tea materials

RESEARCH has been conducted on the processing of flavored teas using Chun Mee and Sow Mee green tea, to produce export quality flavored green tea. The research results showed that Chun Mee and Sow Mee green tea could be made into a jasmine-flavored tea, using the same technology as for local flavored tea. Flavoured teas of Chun Mee and Sow Mee have a stronger taste, good and homogenous appearance, and a stable flavor. These flavored teas may have export potential since they are of better quality than local flavored teas.

News source: **Center for Tea and Quinine Research, Gambung, Indonesia**

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Evaluation of internal quality of fruits

THE INTERNAL quality of fruits, including total sugar content and total acidity, was investigated using near infrared (NIR) spectroscopy. An on-line NIR inspection system was integrated into the postharvest handling system for intact fruits such as mango, grape, pear and wax apple. The partial least square regression was used to develop the calibration equations. The performance of the system showed very good calibration results, with a correlation coefficient of 0.96 and an average SEC of 0.34 oBrix for total sugar content, and with a correlation coefficient of 0.87 and an average SEC of 0.03 Wt % for acidity.

News source: Dept. of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taipei, Taiwan, ROC.

For further information: **Evaluation of internal quality of fruits (III), Research Report. Dept. of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taipei, Taiwan.**

Packaging of mango for short and long distance transportation

FARMER'S mango orchards are often spread out over a wide area. Damage may occur when mangoes are transported from the orchard to the packing station or collection point. In Indonesia, the packaging technique to prevent mechanical damage still uses bamboo baskets. The objective of this research was to develop a suitable packaging method for Harumanis mango for short- and long-distance transportation. The packing method tested for short-distance transportation compared the traditional farmer/trader method (a bamboo basket with a capacity of 30-50 kg) with a rigid plastic basket with a capacity of 20 kg. For long-distance transport, bamboo baskets, cartons and rigid plastic baskets, each with a capacity of 19 kg, were tested. Transportation was in trucks with a capacity of 4000 kg, and the packages were piled into four layers. The tests were repeated six times. Bamboo baskets were of two kinds; one without partitions and the other with a wood partition. For short-distance transportation (5-40 km), bamboo baskets with a capacity of either 30 kg or 50 kg, and rigid plastic baskets with a capacity of 30 kg, all caused mechanical damage.

One-day monitoring after long-distance transportation (Pasuruan-Jakarta) showed the least mechanical damage when mango were transported in cardboard boxes (7 %), followed by rigid plastic baskets (11%), bamboo baskets with wood partitions (33%) and bamboo baskets without partitions (56%), in that order. For healthy fruits kept in storage, there is no difference between the four types of packaging, in terms of quality and storage life. The best packaging method, especially for long-distance transportation, is cardboard cartons.

News source: **Assessment Institute of Agricultural Technology (AIAT), Karangploso, Indonesia**

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Replacement of methyl bromide by alternatives for quarantine applications

METHYL BROMIDE has been listed as one of the ozone-depleting materials, and will be phased out in developed countries by the year 2005. Finding suitable replacement technologies or materials is an immediate challenge. Normal atmospheric gas consists of 78% nitrogen, 21% oxygen, 1% rare gases such as argon, and 0.03% carbon dioxide. When CO2 was introduced into a closed chamber to produce a mixture with a higher concentration of CO2, test insects exposed to this mixture were killed, due to the effect of the CO2. The adults of Sitophilus oryzae, S. zeamais, Oryzaephilus surinamensis and Tribolium castaneum exposed to a mixture of 50% CO2 and 50% air for 6 days, or the larvae of Cadra cautella and Corcyra cephalonica exposed for 5 days, were 100% killed. The immature stages, including eggs, larvae at different ages, or pupae of Sitophilus oryzae and S. zeamais, exposed to a mixture of 60% CO2 and 40% air for 10 days, were also affected. The emergence rates were less than 3% ,compared to those which developed under normal conditions.

News source: **Department of Entomology, National Taiwan University, Taiwan**

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Embryo culture of champagne palm (*Mascarena lagenicaulis* L)

FLORAL MORPHOLOGY. With perfect flowers, the first flowering occurs from the 8th to the 10th year of growth. The flower buds are small, circular and turn green upon exposure to light, but become yellow when ready to open. Only one or two flower buds in a cluster become pollinated and develop into fruits or nuts. The majority of the flowers open on bright sunny days. After two days they fall off. Anthesis is at a maximum from 6:00-7:00 am. Insects are needed to pollinate the stigma. During the dry season, there is a higher fruit yield because there are more insect pollinators. When mature, the ovate fruits are about 2.5-3.0 cm long and 2.0-2.5 cm in diameter with a rough surface.
Embryo Culture. Embryo culture shortens the length of time from flowering or fruit set to harvesting and germination. Fruits with a firm, jelly-like endosperm are best for embryo culture because dissection is easy. The shell is not too hard, and the endosperm is soft enough to easily remove the whitish embryo. Younger fruits have a watery endosperm and embryos are not discernible. Mature fruits have a hard, white endosperm and a harder shell. To ensure healthy and vigorous seedlings from embryo culture, embryos from immature fruits should be put into modified Murashige and Skoog's medium with 5% activated charcoal. In two days, they will enlarge and grow roots. After three weeks, shoots will appear. After six weeks, the first leaf will emerge. The seedlings should be transferred into pots.

News sources: **The University of the Philippines at Los Banos;**
The Philippine Council for Agriculture, Forestry and Natural Resources Research and Development

For Further Information: The Philippine Agriculturist, Vol. 73 (nos. 3&4):349-357,1990.
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