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Postharvest Management in Agriculture

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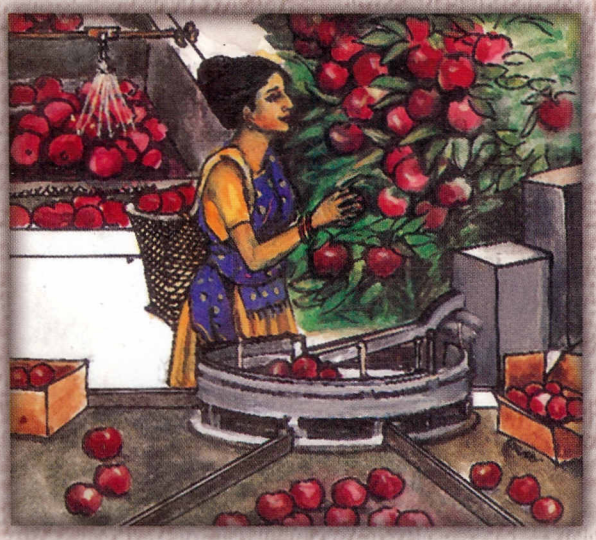

SAARC Agricultural Information Centre

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CONTENTS

(30 (unheated air), 42, 56 and 71°C) at a constant blower speed of 2000 rev/min. Results are presented.

510 SRIVASTAVA, RP; CHAUDHARY, N. 1990. **Changes in higher fatty acids during air-curing of Dixie Shade wrapper tobacco**. *Tobacco Research*, 16: 2, 139-140; 9 ref.

Changes in higher fatty acid composition of wrapper tobacco cv. Dixie Shade leaves collected from top, middle and bottom stalk positions were recorded at harvest, 15 and 30 d after harvest and at the end of curing. Composition of palmitic, oleic, linoleic and linolenic acids increased and myristic acid and stearic acids decreased during air-curing. Linolenic was the predominant fatty acid and constituted about half of the total fatty acids of the matured and cured leaf. Palmitic and stearic acids were higher in bottom leaf positions, and top leaves contained more myristic acid.

511 SRIVASTAVA, RP; CHAUDHARY, N. 1990. **Quantitative changes in the polyphenolic constituents of Dixie shade wrapper tobacco from harvesting to ageing**. *Tobacco Research*, 16: 2, 99-102; 18 ref.

Changes in chlorogenic acid and rutin were studied during air-curing, fermentation and aging of wrapper tobacco cv. Dixie Shade leaves collected from the top, middle and bottom stalk positions. Chlorogenic acid and rutin increased during the 1st 10 d of curing but decreased subsequently. Chlorogenic acid content decreased during fermentation but rutin remained unchanged. Leaves from the upper stalk positions contained more chlorogenic acid and rutin than lower leaves.

512 VARMA, SK; VERMA, RAB; JHA, AK. 1991. **Ecotoxicological aspects of aspergilli present in the phylloplane of stored leaves of chewing tobacco (*Nicotiana tabacum*)**. *Mycopathologia*, 113: 1, 19-23; 22 ref.

Nine different species of *Aspergillus* were isolated from the phylloplane of stored chewing tobacco of different ages. Maximum number of species were isolated from 12- and 18-month-old leaves. *A. ruber*, *ochraceus*, *flavus* and *nidulans* were usually associated with older leaves while *A. niger*, *A. fumigatus* and *A. flavus* were isolated from 6-month-old leaves. Approx. 18% of aspergilli were found to be mycotoxigenic. Sterigmatocystin was produced by 3 species. *A. ochraceus* produced patulin and ochratoxin. All aflatoxigenic strains of *A. flavus* produced aflatoxin B1 but none of the isolates of *A. flavus* produced aflatoxin G2.

COFFEE AND TEA

513 BARMAN, TS. 1990. **Postharvest storage of tea seeds**. *Proceedings of the International Congress of Plant Physiology. V. 2.* (New Delhi: 1988: 15-20 Feb)/edited by SK Sinha; PV Sane; SC Bhargava; PK Agrawal. New Delhi: Society for Plant Physiology and Biochemistry, p. 1392-1395.

The recalcitrant, desiccation-sensitive seeds of tea remain viable for a period of one year when sealed in polyethylene bags and stored in a controlled environment at 4°C and 40-45% RH. Freshly harvested seeds contain 40% moisture and at this level the germination is around 100%. Seeds stored under normal ambient conditions lose moisture at a rapid rate and, at 23% moisture content, germination is reduced to 46%. The critical moisture level in seeds for maintaining viability was 30%, where the germination was 86%. Surface steril. with 0.1% $HgCl_2$ before cold storage enabled viability to be retained for a longer period. Microbial contaminants in seeds punctured by seed bugs [*P. latus*] were difficult to control either by surface steril. or by cold storage.

514 BOSE, SC. 1988. **Requirement of heat for agricultural products and agro-based industries.** *Food-energy nexus and ecosystem. Proceedings of the second international symposium on food-energy nexus and ecosystem.* (New Delhi: 1986: 12-14 February)/edited by TK Moulik. New Delhi: Oxford & IBH Publishing, p. 458-474.

This paper is concerned with the need and usage of heat for the processing of agricultural products. Detailed study was carried out and indicates that heat is primarily required for drying of agricultural products to improve their keeping quality; processing/curing of cash crops to make them marketable; production of downstream products like parboiled rice, refined oil etc. The rationale for the use of improved methods of drying is examined. Processing of three major commodities is assessed in detail in relation to energy requirements: tea, tobacco, paddy. It concludes that most cereals have to be processed before use which requires energy; most cereals are dried by direct exposure to sunshine but processing of cash crops uses coal and fuelwood at the farm level.

515 CHAUDHURY, R; LAKHANPAUL, S; CHANDEL, KPS. 1990. **Germination and desiccation tolerance of tea (*Camellia sinensis (L.) O. Kuntze*)**

seeds and feasibility of cryopreservation. *Sri Lanka Journal of Tea Science*, 59: 2, 89-94; 14 ref.

Tea seeds are large, with a moisture content of around 40% (fresh weight) at the time of shedding. Desiccation to no less than 24% moisture ensured seed survival. Rehydration aided germination of seeds dried to 23% moisture but exposure to liquid nitrogen prevented survival. None of the cryoprotectants used (glycerol, DMSO and PEG 6000) were effective.

516 EKANAYAKE, A; KARIYAWASAM, WS; KANTHASAMY, P. 1988. **A study of micro-organisms in black tea and their activities associated with storage.** *Sri Lanka Journal of Tea Science*, 56: 1, 12-21; 9 ref.

The microbiological changes undergone by black tea due to firing and various storage conditions were evaluated by using standard techniques. Water proved the best extractant for microorganisms in tea and a 5 or 10 min shaking time gave similar extracting efficiencies. Firing of dhools did not sterilize the tea but reduced the bacterial count. Accelerated storage with free access to air and moisture showed a steadily increasing fungal count and a constant bacterial count. Storage in high barrier packaging films showed that access to air played the most important role in controlling microbial counts of stored black tea.

517 OZDEMIR, F; GOKALP, HY; NAS, S. 1993. **Effects of shooting period, times within shooting periods and processing systems on the extract, caffeine and crude fiber contents of black tea.** *Zeitschrift Fur Lebensmittel - Untersuchung und - Forschung*, 197: 4, 358-362.

The extract, caffeine and crude fibre contents of black tea, from different shooting periods, different times within each shooting period and processed by five different commercial rolling methods, were examined. The extract and crude fibre contents of black tea were significantly ($P < 0.01$) affected by all these factors and their interactions. The caffeine content of black tea was affected by the shooting period and times within the shooting period. It was determined that processing methods did not have a significant ($P < 0.05$) effect on the caffeine content. The amount of extract and caffeine decreased from the first shooting period to the third, and also from the beginning of each shooting period to the end. However, the crude fibre content of the black tea increased, esp. from the beginning of each shooting period to the end of each shooting period.

GARLICS

Storage and storage decay

518 DASH, SK; BHATNAGAR, S. 1991. **Multistage dehydration process for garlic (Allium sativa).** *Indian Journal of Agricultural Engineering*, 1: 1, 33-36; 8 ref.

Garlic cloves were dehydrated at 60,70,80 and 90°C up to 20,30,40 and 50% cut-off moisture levels, the remaining moisture up to 5% level for storage was removed at a control temp of 60°C. A 2 stage and 3 stage dehydration process are recommended for garlic dehydration, which results in a saving of about 16 and 17% of the total drying time resp, compared to the single stage drying at 60°C.

519 GARGI; ROY, AN. 1988. **Prevention and control of some post harvest fungal diseases of garlic bulbs.** *Pesticides Bombay*, 22: 2, 11-15; 19 ref.

Bulb rots caused by *Aspergillus ochraceus*, *Fusarium moniliforme* [*Gibberella fujikuroi*] and *Penicillium purpurogenum* were best controlled by avoidance of mechanical injury, storage at low temp. and dips or sprays of Bavistin [carbendazim]

520 MADHAVI, DL; PRABHA, TN; SINGH, NS; PATWARDHAN, MV. 1991. **Biochemical studies with garlic (*Allium sativum*) cell cultures showing different flavour levels.** *Journal of the Science of Food and Agriculture (United Kingdom)*, 56: 1, 15-24.

521 RATH, G; MOHANTY, GN. 1985. ***Aspergillus* rot of stored garlic and its control.** *Indian Journal of Mycology and Plant Pathology*, 15: 3, 323-324; 5 ref.

A. niger, *A. repens* and *A. sclerotiorum* are reported as agents of rotting in stored garlic. Of 9 chemical treatments tested, the best were Agrosan GN [phenylmercury acetate + ethylmercury chloride] and 0.03% formalin [formaldehyde]. Garlic stored for table purposes may be periodically fumigated with formalin.

522 RATH, GC; MOHANTY, GN. 1986. ***Fusarium* rot of stored garlic.** *Indian Phytopathology*, 39: 4, 614-615; 3 ref.

Analysis of over 24 000 rotten stored cloves implicated *F. oxysporum* and *F. solani* as causal agents of storage decay. Both spp. were equally pathogenic and caused almost complete rotting of inoculated cloves held at 35°C and 100% RH in 15 d. Of 9 treatments tested, fumigation with formalin [formaldehyde] appeared to offer the best control.