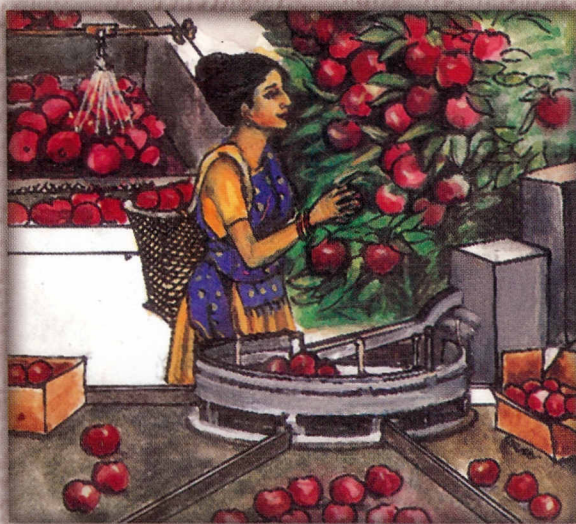




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# Postharvest Management in Agriculture

## SAARC Bibliographical Database



**SAARC Agricultural Information Centre**

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*A S Chandel and R M Kamal*



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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.

523 SINGH, J; VASHISTHA, D. 1990. Effect of harvesting stage and storage methods on garlic self life. *International Seminar on new frontiers in Horticulture*. p. 194.

524 SINGH, J; PANDEY, UC. 1990. Effect of different storage methods on storage life of garlic. *Proceedings of the National Symposium on onion and garlic*. (1990: June 2-3). Solan: Dr. Y.S. Parmar University of Horticulture and Forestry. p. 28.

525 SINGH, J; VASHIST, D; KHURANA, SC. 1994. Effect of harvesting stages and storage methods on storage life of garlic bulbs. *Scientific Horticulture*, 4.

526 VASHISTH, DINESH. 1990. Studies on storage methods of garlic bulbs (M.Sc: thesis). Haryana Agricultural University, Hisar.

An experiment was conducted to study the effect of different storage methods on keeping quality of garlic bulbs cv. HG-1. the crop was harvested at two stages i.e. yellow leaves stage and brown leaves stage, and five methods of storage were used to store the well cured bulbs for five months in well ventilated store at room temperature. The storage losses due to shrinkage, dead cloves, yellow cloves, physiological weight loss and total weight loss increased with the increase in storage period. These losses were lower in first stage harvested bulbs than second stage harvested bulbs. Minimum losses were recorded in the bulbs stored with leaves in wooden boxes, followed by the bulbs kept in tied bundles. The bulbs of first stage of harvested stored with tops (leaves) in wooden boxes had no loss due to shrinkage, dead cloves and yellow cloves even after five months of storage period. Second stage harvested bulbs had higher T.S.S. content than first stage harvested bulbs. Moisture content was observed to be more in first stage harvested bulbs throughout the storage period. While sulphur content was more in first stage harvested bulbs upto 90 days and later it was more in second stage harvested bulbs. Among various methods of storage, the highest T.S.S. and sulphur content were recorded in bulbs stored with tops in wooden boxes and the highest moisture content was noticed in tied bundles. NO sprouting was noticed upto five months of storage. Internal sprouting was 8-10 days earlier than external sprouting. Both the forms of sprouting, i.e. internal and external were earlier in stage II harvested bulbs than stage I harvested bulbs and these were delayed maximum in bulbs stored with tops in wooden boxes. Sprouting per cent was more in stage II harvested bulbs. It was noticed to be the least in the bulbs kept in wooden boxes with tops. The germination per cent of

cloves in the field was neither affected by the stages of harvesting nor by the methods of storage.

527 WAHID, M; KHAN, MS; SHAH, AH. 1990. Effect of irradiation and storage on physico-chemical characteristics of garlic. *Sarhad Journal of Agriculture*, 6: 4, 371-376; 18 ref.

Garlic bulbs (cv. G.S.I.) were irradiated at 0.05, 0.10, 0.15 or 0.20 kGy using <sup>60</sup>Co and stored in wooden crates for 4 months at ambient temperature (20-37°C, 50-80% RH) or low temperature (10°, 80-90% RH). Samples were monitored for sprouting, rot and weight loss. Consumer acceptability and acid value were determined throughout storage. Sprouting was apparent in control (non-irradiated) samples after 4 and 10 weeks' storage at low and ambient temperature, respectively, and reached 100 and 69% after 16 weeks' storage at low and ambient temperature, respectively. Irradiation inhibited sprouting at both temperatures. Percentage decay [unspecified] was lower in irradiated samples than in controls, which showed 31.7% and 52.9% decay, respectively, after 16 weeks' storage at ambient and low temperature. Weight loss increased from 0.2 to 28.3% and from 0.3 to 31.5% in control samples at low and ambient temperature, respectively, between 2 and 16 weeks' storage. Weight loss was less in irradiated samples. Sensory tests showed that irradiated samples retained colour, texture and odour compared with controls. There was a gradual and significant increase (from 0.448 to 2.246 mg KOH/100 g edible portion of sample) in the acid value of controls during storage. Lower doses of irradiation and storage temperature had an irregular effect on the acid value but the highest dose increased the acid value. It was concluded that irradiation had no deleterious effects on the storage properties of garlic and that a dose of 0.05 kGy could be considered cost-effective.

## GINGERS

528 BEEK, TA-VAN; POSTHUMUS, MA; LELYVELD, GP; PHIET, HV; YEN, BT. 1987. Investigation of the essential oil of Vietnamese ginger. *Phytochem.*, 26: 11, 3005-3010; 38 ref.

Data on oil composition of dried roots collected in Hai Hung province are compared with those reported for samples from India, Australia, Japan, Fiji, Sri Lanka and Trinidad. The oil yield was 2.7% and consisted of 28% monoterpene hydrocarbons, 37% oxygenated monoterpenes, 25% sesquiterpene hydrocarbons, small amounts of oxygenated sesquiterpenes and non-terpenoid compounds. The main component (16%) was geranial