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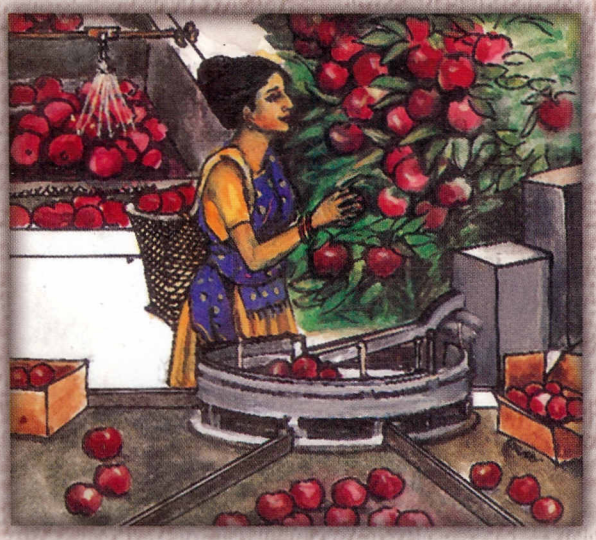

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CONTENTS

45 [mancozeb] were fungicidal and completely inhibited the growth of *F. o. f.sp. zingiberi*. Steeping rhizomes in carbendazim (1%) for 60 min before storage controlled postharvest rots and reduced disease incidence from 71.4 to 18.2%. Carbendazim + mancozeb also gave effective control.

536 VIJAY, S. 1986. **A simple method to preserve fresh ginger rhizomes after harvest**. *Proceedings of National Workshop on the Development of Marketing and Export and North East region and the role of Cooperatives*. (Guwahti: 1986: 12 Feb.). p. 123-124.

537 VIJAY, S. 1983. **Preserve ginger's pungency**. *Farmer's Journal*, 3: 7, 52.

538 VIJAY, S; ANAND, JC. 1982. **Preserving ginger all the year round**. *Ind. Hort.*, 27: 3, 13.

TURMERICS

539 CHANDER, H; KULKARNI, SG; BERRY, SK. 1991. **Effectiveness of turmeric powder and mustard oil as protectants in stored milled rice against the rice weevil, *Sitophilus oryzae***. *International Pest Control*, 33: 4, 94-97; 14 ref.

Laboratory studies were conducted to evaluate the efficacy of turmeric powder (TP) and mustard oil (MO) alone and in different combinations as protectants for milled rice against attack by the curculionid *Sitophilus oryzae*. TP alone did not cause significant mortality except at 2 or 4% concn after a 3-month storage interval. F1 progeny were suppressed by more than 50% at a concn of 1%, even after a 6-month storage interval. Only treatment with MO at 4 or 8 ml/kg dosages gave appreciable mortality of *S. oryzae* at all storage intervals. One or 2 ml/kg dosages reduced *S. oryzae* progeny by 40%, even after 6 months storage, while no progeny developed on rice treated with 4 or 8 ml/kg. Adult mortality following exposure to various combinations of TP and MO, in general, declined as the concn of TP increased for any given dose of MO. The 4 ml/kg dosage of MO combining 1-20 g of TP/kg gave the best protection of rice by completely suppressing progeny. The cooking quality of rice treated with TP and MO alone and in combination was similar to that of untreated rice, with the exception of the retention of a slight turmeric aroma and colour in rice containing the higher concn of TP.

540 CHANDER, H; KULKARNI, SG; BERRY, SK. 1992. **Studies on turmeric and mustard oil as protectants against infestation of red flour beetle, *Tribolium castaneum (Herbst.)* in stored milled rice**. *Journal of Insect Science (India)*, 5: 2, 220-222.

541 GOYAL, RK; KORLA, BN. 1993. **Changes in the quality of turmeric rhizomes during storage**. *Journal of Food Science and Technology - Mysore*, 30: 5, 362-364.

Both cured and uncured dried rhizomes of four turmeric cultivars were examined for changes in curcumin, essential oils, and oleoresins during 12 months storage at ambient temperature. curcumin content continued to decline upto 10 months, but the change, thereafter, was minor, However, essential oil and oleoresins decreased throughout the storage period. The maximum losses in curcumin, essential oils and oleoresins were 23.4, 27.5 and 24.2%, respectively, after 12 months in cured rhizomes of cultivar 'EM-321' and uncured rhizomes of cultivar 'PCT-2'.

542 HARISH KUMAR; ROY, AN. 1990. **Occurrence of fungal rot of turmeric (*Curcuma longa*) rhizomes in Delhi market**. *Indian Journal of Agricultural Sciences*, 60: 3, 189-191; 12 ref.

Postharvest rotting was maximum in Sep. and min. in May. Ten fungi were associated with infection, including *Aspergillus flavus*, *A. niger*, *Cladosporium cladosporioides*, *Drechslera* [*Setosphaeria*] *rostrata*, *Fusarium moniliforme* [*Gibberella fujikuroi*], *F. oxysporum*, *Macrophomina phaseolina*, *Pythium aphanidermatum*, *Rhizoctonia solani* and *Sclerotium* [*Corticium*] *rolfsii*. The *Aspergillus spp.* were the most virulent and caused infection of both injured and uninjured rhizomes.

543 SHARMA, MP; MEER-GUPTA; ROY, AN; GUPTA, M. 1987. **Physico-chemical control of rhizome rot of turmeric**. *Pesticides*, 21:4,33-38; 17ref.

Hot water treatment at 50°C for 30 min eradicated all 18 fungi associated with turmeric seed rhizomes without affecting germination. Bavistin and benomyl were the most effective fungicides on rhizomes inoculated with *Macrophomina phaseolina* and *Cladosporium cladosporioides*.

544 SHARMA, MP; ROY, AN. 1986. **Role of environmental factors in decay of turmeric rhizome**. *Indian Phytopathology*, 39: 2, 302; 3 ref.

The most virulent and widespread of the fungi causing storage rot of *Curcuma longa* and *Macrophomina phaseolina* and *Cladosporium cladosporioides*. Favourable incubation temp. and RH 60% led to maximum

spoilage but no rotting occurred at 15°C even when the RH varied from 30 to 90%.

545 SHARMA, MP; ROY, AN. 1984. **Some new records of fungi causing turmeric rhizome rot**. *Current Science, India*, 53: 16, 869-870; 6 ref.

Freshly harvested rhizomes from 2 centres in India carried rot symptoms, suggesting that infection initiated in the field leads to spoilage in storage. Rotted rhizomes yielded isolates of 10 fungi, all of which reproduced symptoms on healthy rhizomes inoculated by the knife injury method. *Aspergillus flavus*, *A. niger*, *Cladosporium cladosporioides* and *Macrophomina phaseolina* caused 100% infection and decayed 22-25% of rhizome tissues after 21 days of incubation. The other 6 isolates developed infections on 50-60% of rhizomes and spoiled 7-15% of the tissue during the same period. The 4 most virulent fungi were able to penetrate and establish infection through intact host tissues. With the exception of *A. flavus*, the pathogens reported here are newly recorded as causing rotting of turmeric rhizomes.

546 SHARMA, MP; ROY, AN. 1984. **Storage rot in seed rhizome of turmeric (*Curcuma longa L.*) and its control**. *Pesticides*, 18: 11, 26-28; 5 ref., 4 tab.

Storage of seed rhizomes has recently become a serious problem in Barua Sagar, Jhansi, UP. Periodical surveys over 3 yr revealed that *Aspergillus flavus* was associated with > 70% of rotted rhizomes. Sudden spurts in rotting were directly related to increases in RH during the rainy season. Rotting increased with high temp. (c. 35°C). *A. flavus* rot was effectively controlled with pre- and post-inoculation treatments of Bavistin [carbendazim] and benomyl at 10 p.p.m., which is economically feasible.

SPICES

Storage and storage decay

547 CHANDER, H; KULKARNI, SG; BERRY, SK. 1991. **Ability of the red flour beetle, *Tribolium castaneum* to feed and breed in whole and ground spices**. *Indian Cocoa, Arecanut and Spices Journal*, 14: 3, 114-116; 14 ref.

Seven ground or whole spices were tested in the laboratory as media for rearing the stored products pest *Tribolium castaneum*. Development was completed only in powdered chillies [*Capsicum*], and in this food reproductive efficiency was as good as in a standard wheat flour medium.

548 DHANELAPPAGOL, MS; SHASHIDHARA, SD; KULKARNI, GN. 1988. **Studies on drying characteristics of chillies**. *Journal of Agricultural Engineering*, 25: 3, 72-75; 4 ref.

A laboratory study was carried out to determine the drying characteristics of chillies, using fresh harvested chillies (Byadgi variety) at about 45% seed m.c. (d.b.). Results show that both the drying rate and the total drying time depend upon the initial m.c. of the seed, and the temp. and RH of drying air. The heat utilization factor increased with decrease in drying air temp. Drying rate increased with increase in air temp. and total drying time decreased with increase in air temp.

549 MEENA NAIR; PETER, KV. 1990. **Organic, inorganic fertilizers and their combinations on yield and storage life of hot chilli**. *Vegetable Science*, 17: 1, 7-10; 11 ref.

In 3 successive field experiments conducted from Mar. 1987 to Apr. 1988, the effects of farmyard manure (FYM) applied alone (30 t/ha) or in combination (20 or 15 t/ha) with fertilizer mixtures containing N (75, 125 or 175 kg/ha), P_2O_5 (40 kg/ha) and K (25 kg/ha) on yield and storage life of chilli (cv. KAU Cluster) were studied. Combination of fertilizers containing N at 125 or 175 kg/ha with FYM significantly increased the yield compared with the organic or inorganic fertilizers applied alone. Num. and wt. of unmarketable fruits recorded after 10 d of storage incr-eased with increasing of FYM and fertilizers.

550 MISRA, N. 1983. **New records on fungi from the bark of *Cinnamomum zeylanicum Bl.* in storage**. *Science and Culture*, 49: 5, 133-135.

The fungi isolated from unsterilized and surface sterilized cinnamon bark during different seasons are tabulated. *Aspergillus spp.* predominated.

551 NARASHIMHAN, S; RAJALAKSHMI, D; CHAND, N. 1992. **Quality of powdered black pepper (*Piper nigrum L.*) during storage. II. Principal components analyses of GC and sensory profiles**. *Journal of food quality (USA)*, 15: 1, 67-83.

552 POTTER, RW; OLSEN, AR. 1987. **Description of a mite, *Rhypoglyphus indicus*, new genus, new species (*Acari: Acaridae*) found in foods from the Oriental Region**. *International Journal of Acarology*, 13: 4, 271-275; 7 ref.

R. indicus gen. et sp. nov., found in curry powder from India, tamarind candy and food sauces from the Philip-