

Komoditas : Bawang Putih

Title:Efficient transient expression of the beta -glucuronidase reporter gene in garlic (*Allium sativum* L.)

View Article: *Agronomie*. 2000. 20 (8). 869-874

CD Volume:336

Print Article: Pages: 869-874

Author(s):Ferrer E Linares C Gonzalez J M

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Language:English

Language of Summary:french

Abstract:A biolistic particle delivery system was used to introduce DNA containing a beta -glucuronidase (*gus*) reporter gene under the control of the CaMV35S promoter in three different garlic (*Allium sativum* L.) tissues: embryogenic calluses, leaves and basal plate discs. Expression of the reporter gene was assayed histochemically and fluorimetrically when the tissues were bombarded with 1 micro m diameter gold particles coated with DNA, at a distance of 3 cm from the stopping plate and using 1100 psi rupture discs. Following bombardment, high levels of beta -glucuronidase (GUS) were found without the need for treatment to block previously reported putative endogenous nuclease activity

Descriptors:garlic. beta-glucuronidase. gene-expression. biolistics. leaves. callus. bulbs

Organism Descriptors:*Allium-sativum*

Supplemental Descriptors:*Allium*. *Alliaceae*. *Liliales*. *monocotyledons*.

angiosperms. *Spermatophyta*. *plants*

Subject Codes:FF003. FF020. FF060

Supplementary Info:21 ref

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Journal Title:*Agronomie*

Copyright:Copyright CAB International

Title:Temperature and relative humidity effects on egg and nymphal development of *Aceria tulipae* (K.) (Acari : Eriophyidae) on garlic leaves (*Allium sativum* L.)

View Article: *Annals of Applied Biology*. 137 (3). December, 2000. 207-211

CD Volume:356

Print Article: Pages: 207-211

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Language:English

Language of Summary:English (EN)

Abstract:*Aceria tulipae* (K.) is responsible for important crop losses of garlic in all production areas around the world. However, very little is known about its development in relation to temperature and relative humidity (r.h).

Laboratory rearings from egg to adult stage were done on pieces of the apical part of young garlic leaves. These leaf pieces were placed in aluminium dishes floating on water or put on a solid hygroscopic salt in closed plastic trays. Rearing done in dark incubators at constant temperatures (10degreeC to 45degreeC) and with different r.h (25% to 75%) at 15degreeC and 25degreeC showed that: i) the shortest development time occurs at about 25degreeC; ii) the upper lethal temperature and the development threshold for the eggs are respectively estimated about 45degreeC and 6degreeC; iii) a r.h close to 100% is required for a high percentage of egg hatching, but water condensation on leaves is harmful. Host transpiration has an important regulatory effect on humidity conditions favouring mite survival

Descriptors:host transpiration; insect development; mite survival; relative humidity; temperature effect. Chemical Coordination and Homeostasis; Development; Economic Entomology; Climatology (Environmental Sciences); Pest Assessment Control and Management

Organism Descriptors:Aceria tulipae (Acarina): egg, nymph; Allium sativum [garlic] (Liliaceae). leaf

Supplemental Descriptors:Acarina: Chelicerata, Arthropoda, Invertebrata, Animalia; Liliaceae: Monocotyledones, Angiospermae, Spermatophyta, Plantae. Angiosperms; Animals; Arthropods; Chelicerates; Invertebrates; Monocots; Plants; Spermatophytes; Vascular Plants

Subject Codes:Chemical Coordination and Homeostasis; Development; Economic Entomology; Climatology (Environmental Sciences); Pest Assessment Control and Management

ISSN:0003-4746

Year:2000

Journal Title:Annals of Applied Biology

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Title:Chemical speciation influences comparative activity of selenium- enriched garlic and yeast in mammary cancer prevention

View Article: Journal of Agricultural and Food Chemistry. 48 (6). June, 2000. 2062-2070

CD Volume:301

Print Article: Pages: 2062-2070

Author(s):Ip Clement Birringer Marc Block Eric Kotrebai Mihaly Tyson Julian F Uden Peter C Lisk Donald J

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Language:English

Language of Summary:English (EN)

Abstract:A recent human intervention trial showed that daily supplementation with selenized yeast (Se-yeast) led to a decrease in the overall cancer morbidity and mortality by nearly 50%; past research has also demonstrated that selenized garlic (Se-garlic) is very effective in mammary cancer chemoprevention in the rat model. The goal of this study was to compare certain biological activities of Se-garlic and Se-yeast and to elucidate the differences based on the chemical forms of selenium found in these two natural products.

Characterization of organic selenium compounds in yeast (1922 mug/g Se) and garlic (296 mug/g Se) was carried out by high-performance liquid chromatography with inductively coupled plasma mass spectrometry or with electrospray mass spectrometry. Analytical speciation studies showed that the bulk of the selenium in Se-garlic and Se-yeast is in the form of gamma-glutamyl-Se-methylselenocysteine (73%) and selenomethionine (85%), respectively. The above methodology has the sensitivity and capability to account for >90% of total selenium. In the rat feeding studies, supplementation of Se-garlic in the diet at different levels consistently caused a lower total tissue selenium accumulation when compared to Se-yeast. On the other hand, Se-garlic was significantly more effective in suppressing the development of premalignant lesions and the formation of adenocarcinomas in the mammary gland of carcinogen-treated rats. Given the present finding on the identity of selenomethionine and gamma-glutamyl-Se-methylselenocysteine as the major form of selenium in Se-yeast and Se-garlic, respectively, the metabolism of these two compounds is discussed in an attempt to elucidate how their disposition in tissues might account for the differences in cancer chemopreventive activity

Descriptors:chemical speciation; selenized garlic: vegetable; selenized yeast. Foods; Nutrition; Tumor Biology. mammary cancer [breast cancer]: neoplastic disease, prevention, reproductive system disease/female. selenium

Organism Descriptors:yeast (Fungi)

Supplemental Descriptors:Fungi: Plantae. Fungi; Microorganisms; Nonvascular Plants; Plants

Subject Codes:Foods; Nutrition; Tumor Biology

ISSN:0021-8561

Year:2000

Journal Title:Journal of Agricultural and Food Chemistry

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Title:Use of the MS-sensor to discriminate between different dosages of garlic flavoring in tomato sauce

View Article: Journal of Agricultural and Food Chemistry. 48 (7). July, 2000. 2887-2892

CD Volume:301

Print Article: Pages: 2887-2892

Author(s):Dittmann B Zimmermann B Engelen C Jany G Nitz S

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Language:English

Language of Summary:English (EN)

Abstract:A method has been developed to discriminate between different dosages of garlic flavoring in tomato sauce with the help of a mass spectrometry based sensory system. Four fragment ions m/z 73, 81, 114, and 120 were selected as "sensor array" during direct injection of the sample headspace into the mass spectrometer. Tomato sauces blended with different types of flavoring could be discriminated, and concentration gradients could be monitored. Fragment ions were chosen after volatile components had been analyzed and identified by SPME-GC/MS and HS-GC/MS (full scan). HS- GC/MS profiles of m/z 73, 81, 114, and 120 were recorded in the selected ion monitoring mode

Descriptors:food chemistry; garlic flavoring dosage; tomato sauce: sauces and condiments. Foods

Subject Codes:Foods

ISSN:0021-8561

Year:2000

Journal Title:Journal of Agricultural and Food Chemistry

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Title:Improvement of garlic (*Allium sativum* L.) resistance to white rot and storability using gamma irradiation induced mutations

View Article: Journal of Genetics & Breeding. 2000. 54 (3). 175-181

CD Volume:321

Print Article: Pages: 175-181

Author(s):Al Safadi B Mir Ali N Arabi M I E

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Language:English

Abstract:A mutation breeding programme was conducted to improve garlic (*Allium sativum*) resistance to white rot (*Sclerotium cepivorum*) and to improve its storability under natural conditions. Cloves of two local garlic cultivars (Kisswany and Yabroudy) were irradiated with gamma -ray doses 4, 5, 6, and 7 Gray (Gy). The cloves were planted in the field and the plants were advanced for 4 generations to isolate mutations in stable form. Starting in the second generation (M2), selection pressure against white rot disease was applied by covering the soil surrounding the plantlets with infested crop residues (50 g/m²). In the third (M3) and fourth (M4) generations, however, full selection pressure was applied by inoculating the cloves with the fungus sclerotes and planting them in a soil previously planted with infected garlic plants. Healthy garlic bulbs were harvested and stored under natural conditions and then planted to obtain the next generation. By the end of the (M4) generation, improvements were made to resistance to white rot disease and its storability without a reduction in bulb size. Twenty-four mutant lines from each garlic cultivar were selected. Twelve lines from cv. Kisswany had only a 3% infection percentage as compared to 29% in the control, and twelve lines from cv. Yabroudy had less than 5% infection percentage as compared to 20% in the control. Also, storability under natural conditions has improved. Weight loss during storage decreased from

8% in the control to only 4% in some Kisswany lines and from 10% to 3% in some Yabroudy lines

Descriptors:garlic. plant-pathogens. plant-pathogenic-fungi. plant-diseases. disease-resistance. varietal-reactions. fungal-diseases. gamma-radiation. mutagens. induced-mutations. storage-decay. storage-quality

Organism Descriptors:Sclerotium-cepivorum. Allium-sativum

Supplemental Descriptors:Sclerotium. Deuteromycotina. Eumycota. fungi. Allium. Alliaceae. Liliales. monocotyledons. angiosperms. Spermatophyta. plants

Subject Codes:FF020. FF003. FF610. HH600

Supplementary Info:22 ref

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Journal Title:Journal of Genetics & Breeding

Copyright:Copyright CAB International

Title:The effect of paprika, garlic and salt on rancidity in dry sausages

View Article: Meat Science. 54 (1). Jan., 2000. 77-81

CD Volume:335

Print Article: Pages: 77-81

Author(s):Aguirrezabal M M Mateo J Dominguez M C Zumalacarregui J M

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Language:English

Language of Summary:English (EN)

Abstract:Eight batches of ground fat and eight batches of a mixture of meat and fat (70 and 30%, respectively), were prepared by adding salt, paprika and garlic, in the proportions used for making chorizo - a dry fermented sausage - stuffed into natural casings and then ripened. The evolution of rancidity in these products was evaluated by means of total free fatty acid content, peroxide value and TBARS during the ripening period. Spanish paprika and salt showed antioxidant and prooxidant properties, respectively. Paprika was even able to inhibit the prooxidant effect of salt. Also, four batches of chorizo were made to compare the antioxidant effect of the spices (garlic and paprika) with a mixture of nitrate, nitrite and ascorbic acid. In this respect, paprika and garlic were as effective as the mixture of additives in inhibiting lipid oxidation

Descriptors:dry sausage: meat, rancidity; garlic: herbs and spices; paprika: herbs and spices. Foods. lipid: oxidation, rancidity; salt

Subject Codes:Foods

ISSN:0309-1740

Year:2000

Journal Title:Meat Science

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Title:The influence of *Debaryomyces hansenii* and *Candida utilis* on the aroma formation in garlic spiced fermented sausages and model minces

View Article: Meat Science. 56 (4). December, 2000. 357-368

CD Volume:335

Print Article: Pages: 357-368

Author(s):Olesen Pelle Thonning Stahnke Louise Heller

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Language:English

Language of Summary:English (EN)

Abstract:The influence of the yeast starter cultures *Debaryomyces hansenii* and *Candida utilis* on fermented meat aroma was studied in model minces and in commercial-type fermented sausages. Volatile compounds from model minces and sausages were collected using diffusive and dynamic headspace sampling respectively and were identified by gas chromatography/mass spectrometry (GC/MS). A triangle test was carried out on the sausages to detect whether the yeast influenced the sausage odour. *C. utilis* demonstrated high metabolic

activity in the model minces, producing several volatile compounds, in particularly esters. *C. utilis* also seemed to ferment the amino acids valine, isoleucine and leucine into compounds important for the aroma of sausages. *D. hansenii* on the contrary, had very little effect on the production of volatile compounds in the model minces. In the sausage experiment both yeast cultures died out before the ripening process ended and the sensory analysis showed only a slight difference between the sausages. A fungistatic test of the garlic powder added to the sausages indicated that garlic inhibits the growth of the yeast starter cultures

Descriptors:garlic: fungistatic effect, herbs and spices; garlic spiced fermented sausages: aroma, meat product; model minces. Foods. esters; isoleucine; leucine; valine; volatile compounds

Organism Descriptors:*Candida utilis* (Fungi Imperfecti or Deuteromycetes): fermentation agent; *Debaryomyces hansenii* (Ascomycetes): fermentation agent

Supplemental Descriptors:Ascomycetes: Fungi, Plantae; Fungi Imperfecti or Deuteromycetes: Fungi, Plantae. Fungi; Microorganisms; Nonvascular Plants; Plants

Subject Codes:Foods

ISSN:0309-1740

Year:2000

Journal Title:Meat Science

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