

No.	Records	Request
1	2061	SWEET
2	4756	POTATO
3	566	IPOMOEA
4	358	BATATAS
5	514	SWEET POTATO OR IPOMOEA BATATAS
6	16957	PY=2004
* 7	25	#5 and (PY=2004)

Record 1 of 25 - AGRICOLA 1998-2004/09

AU: Njeru,-R.W.; Mburu,-M.W.K.; Cheramgoi,-E.; Gibson,-R.W.; Kiburi,-Z.M.; Obudho,-E.; Yobera,-D.

TI: Studies on the physiological effects of viruses on sweet potato yield in Kenya.

SO: Annals of applied biology. 2004, v. 145, no. 1 p. 71-76.

Record 2 of 25 - AGRICOLA 1998-2004/09

AU: Huang,-D.J.; Chen,-H.J.; Hou,-W.C.; Lin,-C.D.; Lin,-Y.H.

TI: Active recombinant thioredoxin h protein with antioxidant activities from sweet potato (*Ipomoea batatas* [L.] Lam Tainong 57) storage roots.

SO: Journal of agricultural and food chemistry. 2004 July 28, v. 52, no. 15 p. 4720-4724.

AB: Recombinant thioredoxin h (Trx2) overproduced in *Escherichia coli* (M15) was purified by Ni²⁺-chelated affinity chromatography. The molecular mass of Trx2 is ~1.4 kDa as determined by sodium dodecyl sulfate-polyacrylamide gel electrophoresis. Total antioxidant status, 1,1-diphenyl-2-picrylhydrazyl (DPPH) staining, reducing power method, Fe²⁺-chelating ability, ferric thiocyanate (FTC) method, and protection of calf thymus DNA against hydroxyl radical-induced damage were studied. The thioredoxin h protein with a concentration of 12.5 mg/mL exhibited the highest activity (expressed as 0.37 « 0.012 mM ABTS radical cation being cleared) in a total antioxidant status test. In the DPPH staining thioredoxin h appeared as white spots when it was diluted to 50 mg/mL (a final amount of 15 g). Like the total antioxidant status, the reducing power, Fe²⁺-chelating ability, FTC activity, and protection against hydroxyl radical-induced calf thymus DNA damage were found with the thioredoxin h protein. It was suggested that thioredoxin h might contribute to its antioxidant activities against hydroxyl and peroxy radicals.

Record 3 of 25 - AGRICOLA 1998-2004/09

AU: Umemura,-K.; Tanino,-S.; Nagatsuka,-T.; Koga,-J.; Iwata,-M.; Nagashima,-K.; Amemiya,-Y.

TI: Cerebroside elicitor confers resistance to *Fusarium* disease in various plant species.

SO: Phytopathology. 2004 Aug., v. 94, no. 8 p. 813-818.

AB: In the rice blast fungus pathosystem, cerebroside, a compound categorized as a sphingolipid, was found in our previous study to be a non-race-specific elicitor, which elicits defense responses in rice. Here we describe that cerebroside C is produced in diverse strains of *Fusarium oxysporum*, a common soilborne agent of wilt disease affecting a wide range of plant species. In addition, some type of cerebroside elicitor involving cerebroside A, B, or C was detected in other soilborne phytopathogens, such

as *Pythium* and *Botrytis*. Treatment of lettuce (*Lactuca sativa*), tomato (*Lycopersicon esculentum*), melon (*Cucumis melo*), and sweet potato (*Ipomoea batatas*) with cerebroside B resulted in resistance to infection by each pathogenic strain of *F. oxysporum*. Induction of pathogenesis-related genes and H(2)O(2) production by treatment with cerebroside B were observed in tomato root tissues. The cerebroside elicitor showed no antifungal activity against *F. oxysporum* in vitro, indicating that the cerebroside elicitor activates defense mechanisms to confer resistance to Fusarium disease. These results suggest that cerebroside functions as a non-race-specific elicitor in a wide range of plant-phytopathogenic fungus interactions. Additionally, cerebroside elicitor serves as a potential biologically derived control agent.

Record 4 of 25 - AGRICOLA 1998-2004/09

AU: An, -L.V.; Lindberg, -J.E.

TI: Ensiling of sweet potato leaves (*Ipomoea batatas* (L.) Lam) and the nutritive value of sweet potato leaf silage for growing pigs.

SO: Asian-Australasian journal of animal sciences. 2004 Apr., v. 17, no. 4 p.497-503.

Record 5 of 25 - AGRICOLA 1998-2004/09

AU: Hou, -W.C.; Chen, -H.J.; Han, -C.H.; Lin, -C.Y.; Lin, -Y.H.

TI: Glutathione peroxidase-like activity of 33 kDa trypsin inhibitor from roots of sweet potato (*Ipomoea batatas* [L.] Lam 'Tainong 57').

SO: Plant science. 2004 June, v. 166, issue 6 p. 1541-1546.

Record 6 of 25 - AGRICOLA 1998-2004/09

AU: Berg, -P.

TI: Sweet potato production and marketing.

SO: Small farm today. 2004 Mar-Apr, v. 21, no. 2 p. 41-42.

Record 7 of 25 - AGRICOLA 1998-2004/09

AU: Chen, -T.E.; Huang, -D.J.; Lin, -Y.H.

TI: Isolation and characterization of a serine protease from the storage roots of sweet potato (*Ipomoea batatas* [L.] Lam).

SO: Plant science. 2004 Apr., v. 166, issue 4 p. 1019-1026.

Record 8 of 25 - AGRICOLA 1998-2004/09

AU: Impoinvil, -D.E.; Kongere, -J.O.; Foster, -W.A.; Njiru, -B.N.; Killeen, -G.F.; Githure, -J.I.; Beier, -J.C.; Hassanali, -A.; Knols, -B.G.J.

TI: Feeding and survival of the malaria vector *Anopheles gambiae* on plants growing in Kenya.

SO: Medical and veterinary entomology. 2004 June, v. 18, no. 2 p. 108-115.

AB: The propensity of the malaria vector mosquito *Anopheles gambiae* Giles (Diptera: Culicidae) to ingest sugars from various plants, and subsequent survival rates, were assessed with laboratory-reared males and females offered eight species of plants commonly cultivated and/or growing wild in western Kenya. In cages (no-choice bioassay), mosquitoes given the opportunity to feed on castorbean (*Ricinus communis* L.) had the longest survival times (mean and median survival time of 6.99 « 0.23 and 5.67 « 0.17 days, respectively), comparable to mosquitoes given

6% glucose (mean and median survival time of 8.70 « 0.23 and 6.67 « 0.33 days, respectively). Survival rates of *An. gambiae* were low on the other plants, comparable to mosquitoes given only water. Three plants: sweet potato (*Ipomoea batatas* L.), wild sage (*Lantana camara* L.) and castorbean provided levels of sugar ingestion by both sexes of *An. gambiae* detectable using the cold anthrone method, showing a positive correlation between median survival and sugar consumption (Spearman rank correlation coefficient = 0.905, $P < 0.0001$). Equal numbers of males and females were released in an enclosed semi-field greenhouse system containing a range of local plants, but no host for blood, and allowed to feed ad libitum: 6.7 « 0.5% (11/64) of those recaptured were found to contain detectable fructose (all females). Common plants are clearly a viable source of nutrition for adult female *An. gambiae*, as well as males, and may constitute an important resource for this important malaria vector.

Record 9 of 25 - AGRICOLA 1998-2004/09

AU: Genkina, -N.K.; Wasserman, -L.A.; Noda, -T.; Tester, -R.F.; Yuryev, -V. P.

TI: Effects of annealing on the polymorphic structure of starches from sweet potatoes (Ayamurasaki and Sunnyred cultivars) grown at various soil temperatures.

SO: Carbohydrate research. 2004 Apr. 28, v. 339, issue 6 p. 1093-1098.

AB: Starches extracted from the sweet potato cultivars Sunnyred and Ayamurasaki grown at 15 or 33 ÅC (soil temperature) were annealed in excess water (3 mg starch/mL water) for different times (1, 4, 8 or 10 h) at the temperatures 2-3 K below the onset melting temperature. The structures of annealed starches, as well as their gelatinisation (melting) properties, were studied using high-sensitivity differential scanning calorimetry (HSDSC). In excess water, the single endothermic peak shifted to higher temperatures, while the melting (gelatinisation) enthalpy changed only very slightly, if any. The elevation of gelatinisation temperature was associated with increasing order/thickness of the crystalline lamellae. The only DSC endotherm identified in 0.6 M KCl for Sunnyred starch grown at 33 ÅC was attributed to A-type polymorphic structure. The multiple endothermic forms observed by DSC performed in 0.6 M KCl for annealed starches from both cultivars grown at 15 ÅC provided evidence of a complex C-type (A-plus B-type) polymorphic structure of crystalline lamellae. The A:B-ratio of two polymorphic forms increased upon annealing due to partial transformation of B- to A-polymorph, which was time dependent. Long heating periods facilitated the maximal transformation of B- to A-polymorph associated with limited A:B ratio.

Record 10 of 25 - AGRICOLA 1998-2004/09

AU: Ateka, -E.M.; Njeru, -R.W.; Kibaru, -A.G.; Kimenju, -J.W.; Barg, -E.; Gibson, -R.W.; Vetten, -H.J.

TI: Identification and distribution of viruses infecting sweet potato in Kenya.

SO: Annals of applied biology. 2004, v. 144, no. 3 p. 371-379.

Record 11 of 25 - AGRICOLA 1998-2004/09

AU: Carroll,-H.W.; Villordon,-A.Q.; Clark,-C.A.; La-Bonte,-D.R.; Hoy,-M.W.
TI: Studies on Beauregard sweetpotato clones naturally infected with viruses.
SO: International journal of pest management. 2004 Apr-June, v. 50, no. 2 p. 101-106.

Record 12 of 25 - AGRICOLA 1998-2004/09

AU: Rekha,-M.R.; Sasikiran,-K.; Padmaja,-G.
TI: Inhibitor potential of protease and Wga-amylase inhibitors of sweet potato and taro on the digestive enzymes of root crop storage pests.
SO: Journal of stored products research. 2004, v. 40, no. 4 p. 461-470.
AB: The inhibitory potential of purified protease and Wga-amylase isoinhibitors of sweet potato and taro (5 accessions each) on the digestive enzymes of four major root crop pests viz, *Araecerus fasciculatus*, *Sitophilus oryzae*, *Cylas formicarius elegantulus* and *Tribolium castaneum* was studied under in vitro conditions. Wide differences in inhibitory potential were noticed among the isoinhibitors of a single accession as well as among the same isoinhibitor of the different accessions. The isoinhibitor SPAI1 from Kanhangad was inhibitory to all the four insect Wga-amylases (25-58% inhibition), while only 0.8-5% inhibition was exerted by the isoinhibitor SPAI1 from S 1195. Very high inhibition of *A. fasciculatus* and *C. formicarius elegantulus* Wga-amylases (73-94%) was caused by isoinhibitors SPAI2 and SPAI4 from the sweet potato accession S 56-2. *Cylas formicarius elegantulus* Wga-amylases were inhibited to a greater extent by the taro Wga-amylase inhibitor. Among the four insect proteases, those from *A. fasciculatus* and *T. castaneum* were not appreciably inhibited by the protease isoinhibitors of sweet potato and taro. The *S. oryzae* protease was inhibited by 51% by isoinhibitor SPI2, while only 3% inhibition was caused by isoinhibitor SPI4. The selective inhibitory potential of the isoinhibitors of sweet potato and taro on the digestive enzymes of root crop pests could be exploited for making transgenic plants with improved resistance against major pests.

Record 13 of 25 - AGRICOLA 1998-2004/09

AU: Park,-S.Y.; Ryu,-S.H.; Jang,-I.C.; Kwon,-S.Y.; Kim,-J.G.; Kwak,-S.S.
TI: Molecular cloning of a cytosolic ascorbate peroxidase cDNA from cell cultures of sweetpotato and its expression in response to stress.
SO: Molecular genetics and genomics MGG. 2004 Apr., v. 271, no. 3 p. 339-346.

Record 14 of 25 - AGRICOLA 1998-2004/09

AU: An,-L.V.; Hong,-T.T.T.; Lindberg,-J.E.
TI: Ileal and total tract digestibility in growing pigs fed cassava root meal diets with inclusion of fresh, dry and ensiled sweet potato (*Ipomoea batatas* L. (Lam.)) leaves.
SO: Animal feed science and technology. 2004 May 3, v. 114, no. 1-4 p. 127-139.

Record 15 of 25 - AGRICOLA 1998-2004/09

AU: Uno,-T.; Nakasuji,-A.; Shimoda,-M.; Aizono,-Y.
TI: Expression of cytochrome c oxidase subunit 1 gene in the brain at an early stage in the termination of pupal diapause in the sweet potato hornworm, *Agrius convolvuli*.
SO: Journal of insect physiology. 2004 Jan., v. 50, no. 1 p. 35-42.
AB: Suppression-subtractive hybridization was used to isolate cDNAs specifically expressed in the brain at the termination of pupal diapause in *Agrius convolvuli*. One of the isolated clones shows similarity to the cytochrome c oxidase subunit 1 (COX1) gene. The full-length cDNA was obtained from brain mRNA by rapid amplification of cDNA ends (RACE). The insert is 1.65 kb in length and has an open reading frame of 1.46 kb which encodes a putative protein of 486 amino acid residues. RT-PCR reveals that the mRNA increases dramatically at an early stage of diapause termination. Activity of cytochrome c oxidase in the brain also increases at the same time. The up-regulation of this gene suggests that expression of the COX1 gene and ATP synthesis are initiated in the brain in association with diapause termination.

Record 16 of 25 - AGRICOLA 1998-2004/09

AU: Singh,-S.; Raina,-C.S.; Bawa,-A.S.; Saxena,-D.C.
TI: Sweet potato-based pasta product: optimization of ingredient levels using response surface methodology.
SO: International journal of food science and technology. 2004 Feb., v. 39, no. 2 p. 191-200.
AB: Sweet potato flour was used for the development of a pasta product. The system known as response surface methodology was used to analyse the effect of sweet potato flour, soyflour, water, Arabic gum and carboxy methyl cellulose (CMC) on quality responses (sensory, solids loss and hardness) of the pasta product. A rotatable central-composite design was used to develop models for the responses. Responses were affected most by changes in soyflour and gum levels and to a lesser extent by sweet potato flour and water levels. Individual contour plots of the different responses were superimposed and regions meeting the maximum sensory score (33.8), minimum solids loss (16.6%) and maximum texture hardness (5616 g) were identified at 674 g kg⁻¹ sweet potato flour, 195 g kg⁻¹ water, 110 g kg⁻¹ soyflour, 10.6 g kg⁻¹ Arabic gum and 10.1 g kg⁻¹ CMC levels.

Record 17 of 25 - AGRICOLA 1998-2004/09

AU: Byamukama,-E.; Gibson,-R.W.; Aritua,-V.; Adipala,-E.
TI: Within-crop spread of sweet potato virus disease and the population dynamics of its whitefly and aphid vectors.
SO: Crop protection. 2004 Feb., v. 23, no. 2 p. 109-116.
AB: Sweet potato virus disease (SPVD) is the most damaging disease of sweet potato (*Ipomoea batatas* (L) Lam) in Uganda and results from dual infections of Sweet potato feathery mottle virus (SPFMV), vectored by aphids, and Sweet potato chlorotic stunt virus (SPCSV), vectored by whiteflies. For three cropping cycles, whiteflies (*Bemisia tabaci*), aphids (*Myzus persicae* and *Aphis gossypii*) and the spread of SPVD were monitored within and outside the sweet potato crop containing a central plot of SPVD-infected plants. There were similar catches of whiteflies on sticky traps placed on poles within the crop at different distances and directions around the infected plot. Outside the crop, there were also similar catches of whiteflies near (15 m) and far away (100 m)

from the sweet potato crop. However, more whiteflies were trapped within than outside the crop. Most whiteflies were trapped close to the canopy. Aphids were rarely found on sweet potato plants, although they were commonly found on the traps. The number of aphids trapped inside the crop did not differ significantly from those trapped outside the crop. Consistently, a higher proportion of plants developed SPVD symptoms in the inner square than plants located further away from the infected plot. Number of infected plants correlated with trap catches of whiteflies only for the first season.

Record 18 of 25 - AGRICOLA 1998-2004/09

AU: Iwaya-Inoue, -M.; Matsui, -R.; Sultana, -N.; Saitou, -K.; Sakaguchi, -K.; Fukuyama, -M.
TI: 1H-NMR method enables early identification of degeneration in the quality of sweet potato tubers.
SO: Journal of agronomy and crop science = Zeitschrift fur Acker- und Pflanzenbau. 2004 Feb., v. 190, no. 1 p. 65-72.

Record 19 of 25 - AGRICOLA 1998-2004/09

AU: Thibodeau, -M.S.; Poore, -M.H.; Hagler, -W.M.-Jr.; Rogers, -G.M.
TI: Effect of fermentation on sweetpotato (*Ipomoea batatas*) toxicity in mice.
SO: Journal of agricultural and food chemistry. 2004 Jan. 28, v. 52, no. 2 p. 380-384.
AB: Unfortunate bovine fatalities occurring after ingestion of mold-damaged sweetpotatoes preclude the use of the culled tubers in livestock feed. In cattle, mold-damaged sweetpotatoes induce an acute respiratory distress syndrome resulting in asphyxiation. Because of this potential toxicity and the general abundance of culled sweetpotatoes, the detoxification efficacy of ensiling was explored since it is an easy and economically viable technique often applied to preserve livestock feed. Sweetpotato slices with or without mold damage were stored either frozen (to represent unfermented samples) or fermented for 6 weeks at room temperature. Following fermentation, organic extracts were generated for administration to mice. Thirty hours following administration of the extracts, mice were evaluated for gross and microscopic lesions affecting the lungs, liver, and kidneys. Fermentation of 6 weeks duration was observed to inadequately eliminate the lung, liver, and kidney toxicity caused by mold-damaged sweetpotatoes. In fact, fermentation exacerbated the hepatotoxicity of mold-damaged sweetpotatoes. This is also the first demonstration that sweetpotato regions lacking visible mold damage can induce lung and kidney injury, which, however, is preventable by fermentation.

Record 20 of 25 - AGRICOLA 1998-2004/09

AU: Wang, -S.J.; Yeh, -K.W.; Tsai, -C.Y.
TI: Circadian control of sweet potato granule-bound starch synthase I gene in *Arabidopsis* plants.
SO: Plant growth regulation. 2004 Feb., v. 42, no. 2 p. 161-168.
AB: A starch granule-bound starch synthase I (GBSSI) gene is regulated by a circadian clock in sweet potato leaves. In order to examine whether the promoter region is responsible for controlling a circadian expression of the GBSSI gene, the sweet potato GBSSI promoter was isolated and deleted to different

lengths for functional analysis with a GUS reporter gene in transgenic Arabidopsis plants. Nuclear run-on transcriptional assays showed that the circadian control was regulated at the transcriptional rate level, and de novo synthesized proteins were necessary for controlling the rhythm. Promoter assays showed that the GBSSI promoter fragments containing six I-boxes, two putative circadian regulation elements (CAANNNNATC) and four circadian clock-associated 1 protein-binding sites (AATCT) maintained the activity to induce the circadian expression of the GUS gene. Similar to the GBSSI in sweet potato, GBSSI, soluble starch synthase and ADP-glucose pyrophosphorylase genes in Arabidopsis leaves also exhibited a circadian rhythm. These results suggested that common signals may exist in dicotyledonous plants to coordinate the circadian expression of genes involved in the transitory starch synthetic pathway.

Record 21 of 25 - AGRICOLA 1998-2004/09

AU: Fujiwara,-M.; Kubota,-C.; Kozai,-T.; Sakami,-K.

TI: Air temperature effect on leaf development in vegetative propagation of sweetpotato single node cutting under artificial lighting.

SO: Scientia horticulturae. 2004 Feb. 27, v. 99, no. 3-4 p. 249-256.

Record 22 of 25 - AGRICOLA 1998-2004/09

AU: Huang,-D.J.; Chen,-H.J.; Hou,-W.C.; Lin,-Y.H.

TI: Isolation and characterization of thioredoxin h cDNA from sweet potato (*Ipomoea batatas* [L.] Lam 'Tainong 57') storage roots.

SO: Plant science Plant science Shannon, Ireland. 2004 Feb., v. 166, no. 2 p. 515-523.

Record 23 of 25 - AGRICOLA 1998-2004/09

AU: Huang,-D.J.; Chen,-H.J.; Hou,-W.C.; Chen,-T.E.; Lin,-Y.H.

TI: In vitro reduction of trypsin inhibitor by purified NADPH/thioredoxin system from sprouts of sweet potato (*Ipomoea batatas* (L) Lam.) storage roots.

SO: Plant science Plant science Shannon, Ireland. 2004 Feb., v. 166, no. 2 p. 435-441.

Record 24 of 25 - AGRICOLA 1998-2004/09

AU: Ateka,-E.M.; Barg,-E.; Njeru,-R.W.; Lesemann,-D.E.; Vetten,-H.J.

TI: Further characterization of 'sweet potato virus 2': a distinct species of the genus Potyvirus.

SO: Archives of virology. 2004 Feb., v. 149, no. 2 p. 225-239.

Record 25 of 25 - AGRICOLA 1998-2004/09

AU: Iwe,-M.O.; Zuilichem,-D.J.-van; Stolp,-W.; Ngoddy,-P.O.

TI: Effect of extrusion cooking of soy-sweet potato mixtures on available lysine content and browning index of extrudates.

SO: Journal of food engineering. 2004 Apr., v. 62, no. 2 p. 143-150.

AB: Effects of three processing variables: feed composition (% sweet potato), screw speed, and die diameter on available lysine and browning index were investigated following extrusion cooking of mixtures of defatted soy flour and sweet potato flour. Response surfaces for the parameters were generated using a second degree polynomial. Results show that increase in screw speed and a reduction in die diameter enhanced lysine retention. Increase in feed composition, and screw speed increased browning index, but

decreases in die diameter and feed composition increased browning index. Optimum extrusion conditions resulting in maximum available lysine and minimum browning index were estimated.