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## Indexed in SCI

## Crop Science

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ScienceDirect

### Characterization of *TaCOMT* genes associated with stem lignin content in common wheat and development of a gene-specific marker

939

FU Lu-ping, XIAO Yong-gui, YAN Jun, LIU Jin-dong, WEN Wei-e, ZHANG Yong, XIA Xian-chun, HE Zhong-hu

### Phenotypic characterization and genetic mapping of the dwarf mutant *m34* in maize

948

LI Jie-ping, Soomro Ayaz Ali, XIAO Gui, CHEN Fan-jun, YUAN Li-xing, GU Ri-liang

### Morphological diversity and correlation analysis of phenotypes and quality traits of proso millet (*Panicum miliaceum* L.) core collections

958

ZHANG Da-zhong, Rabia Begum Panhwar, LIU Jia-jia, GONG Xiang-wei, LIANG Ji-bao, LIU Min-xuan, LU Ping, GAO Xiao-li, FENG Bai-li

### Field identification of morphological and physiological traits in two special mutants with strong tolerance and high sensitivity to drought stress in upland rice (*Oryza sativa* L.)

970

HUANG Min, XU Yu-hui, WANG Hua-qi

### Mulching with plastic film improved the root quality of summer-sown sweet potato (*Ipomoea batatas* (L.) Lam.) in northern China

982

HOU Fu-yun, DONG Shun-xu, XIE Bei-tao, ZHANG Hai-yan, LI Ai-xian, WANG Qing-mei

## Horticulture

### Crosstalk of cold and gibberellin effects on bolting and flowering in flowering Chinese cabbage

992

SONG Shi-wei, LEI Yu-ling, HUANG Xin-min, SU Wei, CHEN Ri-yuan, HAO Yan-wei

### Foliar spraying of aqueous garlic bulb extract stimulates growth and antioxidant enzyme activity in eggplant (*Solanum melongena* L.)

1001

Muhammad Ali, CHENG Zhi-hui, Sikandar Hayat, Husain Ahmad, Muhammad Imran Ghani, LIU Tao

## Plant Protection

### Seedling and adult plant resistance to leaf rust in 46 Chinese bread wheat landraces and 39 wheat lines with known *Lr* genes

1014

ZHANG Pei-pei, Takele Weldu Gebrewahid, ZHOU Yue, LI Qing-luo, LI Zai-feng, LIU Da-qun





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**The autophagy gene *ATG8* affects morphogenesis and oxidative stress tolerance in *Sporisorium scitamineum*** 1024

ZHANG Bin, CUI Guo-bing, CHANG Chang-qing, WANG Yi-xu, ZHANG Hao-yang, CHEN Bao-shan, DENG Yi-zhen, JIANG Zi-de

**Preparation and characterization of atrazine-loaded biodegradable PLGA nanospheres** 1035

CHEN Xiao-ting, Tongxin Wang

**Species-specific COI primers for rapid identification of a globally significant invasive pest, the cassava mealybug *Phenacoccus manihoti* Matile-Ferrero** 1042

WANG Yu-sheng, TIAN Hu, WAN Fang-hao, ZHANG Gui-fen

**No evidence for an effect of *Wolbachia* on mtDNA variation and evolution in natural populations of *Sesamia inferens* (Lepidoptera: Noctuidae)** 1050

TANG Xiao-tian, XU Jing, LU Ming-xing, DU Yu-zhou

**Alanine-substituted mutant on Gly<sup>373</sup> and Asn<sup>375</sup> of Cry1Ai-h-loop 2 causes reduction in both toxicity and binding against *Helicoverpa armigera*** 1064

LIU Yu-xiao, ZHOU Zi-shan, LIANG Ge-mei, SONG Fu-ping, ZHANG Jie

**Animal Science • Veterinary Medicine**

**Production of homeobox A10 gene transgenic pigs by somatic cell nuclear transfer** 1072

XIAO Qian, ZHAO Chang-zhi, LIN Rui-yi, LI Guang-lei, LI Chang-chun, WANG Hai-yan, XU Jing, XIE Sheng-song, YU Mei, ZHAO Shu-hong

**Weaning methods affect ruminal methanogenic archaea composition and diversity in Holstein calves** 1080

DONG Li-feng, MA Jun-nan, TU Yan, DIAO Qi-yu

**Evaluating the efficacy of an attenuated *Streptococcus equi* ssp. *zoepidemicus* vaccine produced by multi-gene deletion in pathogenicity island SeseCisland\_4** 1093

MA Fang, WANG Guang-yu, ZHOU Hong, MA Zhe, LIN Hui-xing, FAN Hong-jie

**Agro-Ecosystem & Environment**

**Carbon cycle in response to residue management and fertilizer application in a cotton field in arid Northwest China** 1103

ZHANG Peng-peng, XU Shou-zhen, ZHANG Guo-juan, PU Xiao-zhen, WANG Jin, ZHANG Wang-feng

**Interaction effect of nitrogen form and planting density on plant growth and nutrient uptake in maize seedlings** 1120

WANG Peng, WANG Zhang-kui, SUN Xi-chao, MU Xiao-huan, CHEN Huan, CHEN Fan-jun, Yuan Li-xing, MI Guo-hua

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**Polyaspartic acid mediates the absorption and translocation of mineral elements in tomato seedlings under combined copper and cadmium stress** 1130

HU Mei-mei, DOU Qiao-hui, CUI Xiu-min, LOU Yan-hong, ZHUGE Yu-ping

**Effect of grazing time and intensity on growth and yield of spring wheat (*Triticum aestivum* L.)** 1138

Ketema Tilahun Zeleke

## Food Science

**Comparison of phenolic profiles and antioxidant activities in skins and pulps of eleven grape cultivars (*Vitis vinifera* L.)** 1148

LI Fu-xiang, LI Fu-hua, YANG Ya-xuan, YIN Ran, MING Jian

**The chemical treatments combined with antagonistic yeast control anthracnose and maintain the quality of postharvest mango fruit** 1159

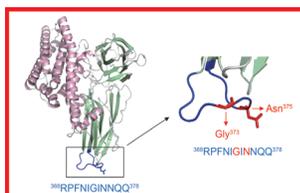
SHAO Yuan-zhi, ZENG Jiao-ke, TANG Hong, ZHOU Yi, LI Wen

## Short Communication

**Impacts of *Sletr1-1* and *Sletr1-2* mutations on the hybrid seed quality of tomatoes** 1170

Syariful Mubarak, Hiroshi Ezura, Anas, Kusumiyati, Neni Rostini, Erni Suminar, Gungun Wiguna

## COVER



Cry1Ai-h-loop 2 is a modified protein of Cry1Ai constructed by exchanging loop 2 from Cry1Ah protein and shows insecticidal activity against *Helicoverpa armigera*. To characterize the key sites of loop 2 in Cry1Ai-h-loop 2, Ala-substituted mutants were generated. The toxicity of these mutants against *H. armigera* indicated that dual-mutant on Gly<sup>373</sup> and Asn<sup>375</sup> caused a significant decrease in toxic activity. The reduction of toxicity in the mutant of interest was correlated with decreased binding affinity with midgut brush border membrane vesicles of *H. armigera*. Taken together with previously reported findings, the progress indicates that the exposed loops are essential for both toxicity and interaction, which could be considered as candidate sites for directional modification of Cry proteins for transgenic crops. See pages 1064–1071 by Liu *et al.* for more details.