

New Records of the Gramineae from Guangdong Province

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Abstract: *Echinochloa crusgalli* (L.) P. Beauv. var. *praticola* Ohwi, *Pseudopogonatherum contortum* (Brongn.) A. Camus var. *linearifolium* Keng ex S. L. Chen are reported as new records of Gramineae from Guangdong Province. All the voucher specimens cited in this paper are preserved in Herbaria of South China Botanical Garden, the Chinese Academy of Science (IBSC) and Shenzhen Fairy Lake Botanical Garden (SZG).

Key words: New records; Gramineae; Guangdong

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广东禾本科植物分布新记录

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摘要:报道了广东省禾本科植物分布新记录:细叶旱稗 *Echinochloa crusgalli* (L.) P. Beauv. var. *praticola* Ohwi 和线叶笔草 *Pseudopogonatherum contortum* (Brongn.) A. Camus var. *linearifolium* Keng ex S. L. Chen. 所引标本均存放于中国科学院华南植物园标本馆 (IBSC) 和深圳仙湖植物园标本馆 (SZG).

关键词:新记录; 禾本科; 广东

Two new records of Gramineae from Guangdong were found when the authors studied the Gramineae in Herbaria of South China Botanical Garden (IBSC) and Shenzhen Fairy Lake Botanical Garden (SZG), i. e., *Echinochloa crusgalli* (L.) P. Beauv. var. *praticola* Ohwi, and *Pseudopogonatherum contortum* (Brongn.) A. Camus var. *linearifolium* Keng ex S. L. Chen^[13].

1 *Echinochloa crusgalli* (L.) P. Beauv. var. *praticola* Ohwi

Echinochloa crusgalli (L.) P. Beauv. var. *praticola* Ohwi in Acta Phytotax. et Geobot. 11: 37. 1942; S. L. Chen in Fl. Reip. Pop. Sin.: 10(1): 253-255. 1990, et in Fl. China, 22: 518. 2006.

Guangdong: Shenzhen, Nantou, on the plain, 1984-10-27, Wang Xue-wen 392 (IBSC); Shenzhen, Liantang, roadside grassland, 2004-04-25, Li Pei-

qiong (P. C. Li) 012895 (SZG); Shenzhen, Longgang, agricultural demonstration fields, 2006-05-09, Chen Jing-fang et Wang Guo-dong 5783 (SZG); Dinghu, Kengkou, Dahetang, lakeside plain, 1976-07-08, Shi Guo-liang 12349 (IBSC); Lechang, Pingshi, Jingmingshan, hilly country, valley, scrub, and loam, 1986-11-04, Nanling Team 3509 (IBSC).

Distribution: He'nan, Anhui, Jiangsu, Hubei, Taiwan, Guizhou, Guangxi, and Yunnan^[1-2]. And it is a new record of Guangdong.

2 *Pseudopogonatherum contortum* (Brongn.) A. Camus var. *linearifolium* Keng ex S. L. Chen

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乙酰甲喹 LOD 为 16 $\mu\text{g}/\text{kg}$, LOQ 为 50 $\mu\text{g}/\text{kg}$.

3 讨论

3.1 预处理方法的选择

因为乙酰甲喹的化学结构与喹乙醇相似,本试验参照了喹乙醇在动物肉中的提取方法^[5-8]. 喹乙醇在样品中的提取方法大致分为 2 种:一种是用有机溶剂提取;另一种是用盐溶液提取,然后再用有机溶剂反萃取,该方法过程繁琐,检出限高,不能满足微量分析要求. 试验中,用甲醇、乙酸乙酯、丙酮、乙腈、饱和硫酸铵溶液作为提取剂,但都存在杂质干扰多,或回收率低等缺点,因此没被采用. 根据乙酰甲喹在水中的溶解度随温度的升高而增大的特点,经过研究和试验,采用温水直接提取的方法,能有效地把乙酰甲喹从肉中提取出来. 但水温过高,杂质干扰很大,通过试验,选择 40 $^{\circ}\text{C}$ 双蒸水提取较合适. 再用三氯乙酸沉淀蛋白,再经 LC-18 固相萃取小柱净化,洗脱液进行高效液相色谱分析. 结果表明,本方法中采用的样品前处理方法,检测结果对组织内源性物质和其他药物具有选择性,不出现干扰现象.

3.2 吸收波长的选择

取乙酰甲喹对照品适量,溶于体积分数为 40% 的甲醇溶液,对其进行紫外光谱扫描. 溶液在 254、373 nm 波长处均有吸收峰,空白猪肉在 254 nm 波长处有强干扰,所以取干扰少但也有较强吸收的 373 nm.

3.3 色谱条件的选择

分别选择乙腈-水、甲醇-水为流动相^[5-10],对样品进行分离试验. 结果表明,甲醇-水分离体系优于乙腈-水,所以选择甲醇-水为分离乙酰甲喹的流动相. 试验证明,当甲醇和水的体积比为 40:60、流动相流速为 0.7 mL/min 时,乙酰甲喹的峰形对称、尖锐,且与样品本底有良好的分离.

4 结论

本研究建立了灵敏、准确、高效的 HPLC 测定猪肉中乙酰甲喹的残留量方法,检测的乙酰甲喹在 0.040 ~ 2.000 mg/L 范围内线性良好,相关系数 >0.999 ;乙酰甲喹在猪肌肉中的检出限达 16 $\mu\text{g}/\text{kg}$,定量限为 50 $\mu\text{g}/\text{kg}$.

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Guangdong: Shenzhen, Fairy Lake Botanical Garden, altitude 40 m, ridge of farmland, 1989-10-20, Wang Ding-yue (D. Y. Wang) 89278 (SZG).

Distribution: Sichuan, Yunnan, and Guangxi^[1-2]. And it is the new record of Guangdong.

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