山东农业大学学报(自然科学版),2015,46(5):783-784 VOL.46 NO.5 2015
Journal of Shandong Agricultural University (Natural Science Edition) doi:10.3969/j.issn.1000-2324.2015.05.027

山楂叶螨种名订正的建议

杨春红,孙 菲,谢丽霞,尹淑艳*
山东农业大学 植物保护学院, 山东 泰安 271018

摘 要: 1997 年，法国学者 Navajas 等基于 COI 和 ITS2 序列以及形态特征分析发现，山楂叶螨 *Tetranychus viennensis* Zacher 与叶螨属中的其他种差别较大，建议恢复 1931 年 Oudemans 建立的双叶螨属 *Amphitetranychus*，将 *Tetranychus viennensis* Zacher 改为 *Amphitetranychus viennensis* (Zacher)。此后，世界许多国家的研究者采用了这种新的分类系统。为了便于不同国家研究者之间的信息交流，有必要将这一信息传达给中国的研究者，并建议中国的研究者也采用此分类系统。

关键词: 山楂叶螨; 叶螨属; 双叶螨属;种名订正
中图法分类号: Q969.91 **文献标识码:** A **文章编号:** 1000-2324(2015)05-0783-2

Recommendation for the Revision of Hawthorn Spider Mite Scientific Name

YANG Chun-hong, SUN Fei, XIE Li-xia, YIN Shu-yan*
College of Plant Protection/Shandong Agricultural University, Tai'an 271018, *China*

Abstract: In 1997, based on the analysis of COI and ITS2 sequences and morphological characteristics, Navajas *et al.* found that *Tetranychus viennensis* Zacher was different distinctively from other species in *Tetranychus.* They proposed that the genus *Amphitetranychus* created by Oudemans in 1931 should be restored and this genus should include *Amphitetranychus viennensis.* From then on, researchers in many countries adopted this new classification system. In order to facilitate the exchange of information among researchers of different countries, it is necessary to convey this information to the researchers in China. We recommend that Chinese researchers should adopt this classification system.

Keywords: Hawthorn spider mite; *Tetranychus*; *Amphitetranychus*; revision of scientific name

山楂叶螨是我国北方落叶果树的主要害螨，以各活动螨态群集于叶片背面吸食汁液，危害严重时常引起叶片提早脱落，甚至引起二次发芽、二次开花，不仅使当年果品产量大幅度降低，而且严重削弱树势，对以后几年的产量也有较大影响[1]。

自 1920 年 Zacher 为山楂叶螨定名（*Tetranychus viennensis*）以来，山楂叶螨的归属问题几经更改：1931 年，Oudemans 建立了一个新属——双叶螨属 *Amphitetranychus*，将山楂叶螨归为该属，1950 年，Reck 又将其归为叶螨属 *Tetranychus*，1956 年 Ehara 又采用了 Oudemans 的分类系统，1960 年，Wainstein 将 *Amphitetranychus* 设为叶螨属的亚属[2]。1997 年，Navajas 基于 COI 和 ITS2 序列分析了叶螨属中一些种的系统发育关系，分析物种中包括山楂叶螨 *Tetranychus viennensis* Zacher 和与山楂叶螨形态相似的 *Tetranychus quercivorus* Ehara & Gotoh。在基于 COI 和 ITS2 序列构建的系统发育树上，*Tetranychus viennensis* 与 *Tetranychus quercivorus* 聚在一起，而独立于叶螨属其他种所在的分支之外。进一步的形态观察发现，*Tetranychus viennensis* 与 *Tetranychus quercivorus* 雌、雄螨的所有足的爪间突均缺少背中毛，气门沟末端呈网状，而叶螨属其他种雌螨或雄螨足的爪间突背中毛可见，气门沟末端弯曲。分子与形态数据趋同，作者建议恢复 Oudemans 建立的双叶螨属 *Amphitetranychus*，山楂叶螨 *Tetranychus viennensis* 及 *Tetranychus quercivorus* 应归属于 *Amphitetranychus*[3]。

自1997年Navajas的文章发表以来，法国、日本、伊朗、土耳其、荷兰等国家的学者纷纷采用他的分类系统，将山楂叶螨的学名改为*Amphitetranychus viennensis* (Zacher)[4-13]，但目前我们国家除了南京农业大学洪晓月教授实验室的研究人员[14,15]之外，大部分研究者还是沿用原来的学名。为了与国际接轨，便于不同国家研究者之间的信息交流，建议中国的研究者也将山楂叶螨的学名改为 *Amphitetranychus viennensis*。

收稿日期: 2015-04-03 **修回日期**: 2015-04-20
基金项目: 山东省科技发展计划项目(J14LE14); 国家自然基金项目(31401957)
作者简介: 杨春红(1989-),女,硕士研究生,从事昆虫与螨类分子生物学研究. E-mail:1058190454@qq.com
*通讯作者: Author for correspondence. E-mail: shuyany@163.com

数字优先出版: 2015-10-06 http://www.cnki.net

参考文献

[1] 李定旭,张晓宁,杨玉玲,等.高温冲击对山楂叶螨的影响[J].生态学报,2010,30(16):4437-4444
[2] Bolland HR, Guterrez J, Flechtmann CHW. World catalogue of the spider mite family (Acari: Tetranychidae)[M]. Leiden:Brill Academic Publishers,1998
[3] Navajas M, Gutierrez J, Gotoh T. Convergence of molecular and morphological data reveals phylogenetic information on *Tetranychus* species and allows the restoration of the genus *Amphitetranychus*(Acari: Tetranychidae)[J]. Bulletin of Entomological Research, 1997,87:283-288
[4] Furuichi H, Yano S, Takafuji A, *et al*. Prey preference of the predatory mite *Neoseiulus womersleyi* Schicha is determined by spider mite webs[J]. Journal of Applied Entomology, 2005,129(6):336–339
[5] Hosseini M, Hatami B, Saboori A, *et al*. Predation by *Allothrombium pulvinum* on the spider mites *Tetranychus urticae* and *Amphitetranychus viennensis*: predation rate, prey preference and functional response[J]. Experimental & Applied Acarology, 2005,37(3-4):173-181
[6] Kafil M, Allahyari H, Saboori A. Effect of host plants on developmental time and life table parameters of *Amphitetranychus viennensis* (Acari: Tetranychidae) [J]. Experimental & Applied Acarology, 2007,42(4):273-281
[7] Kasap I. Life history of hawthorn spider mite *Amphitetranychus viennensis* (Acarina: Tetranychidae) on various apple cultivars and at different temperatures[J]. Experimental & Applied Acarology, 2003,31(1-2):79-91
[8] Kishimoto H, Adachi I. Predation and oviposition by predatory *Stethorus japonicus*, *Oligota kashmirica benefica,* and *Scolothrips takahashii* in egg patches of various spider mite species[J]. Entomologia Experimentalis et Applicata, 2008,128(2):294–302
[9] Navajas M, Gutierrez J, Lagnel J, *et al*. DNA sequences and cross-breeding experiments in the hawthorn spider mite *Amphitetranychus viennensis* reveal high genetic differentiation between Japanese and French populations[J]. Entomologia Experimentalis et Applicata, 1999,90(2):113–122
[10] Navajas M, Lagnel J, Gutierrez J, *et al*. Species-wide homogeneity of nuclear ribosomal ITS2 sequences in the spider mite *Tetranychus urticae* contrasts with extensive mitochondrial *COI* polymorphism[J]. Heredity, 1998,80(6):742–752
[11] Ros VID, Breeuwer JAJ. Spider mite (Acari: Tetranychidae) mitochondrial COI phylogeny reviewed: host plant relationships, phylogeography, reproductive parasites and barcoding[J]. Experimental & Applied Acarology, 2007,42:239-262
[12] Yanar D, Ecevit O. Species composition and seasonal-occurrence of spider mites and their predators in sprayed and unsprayed apple orchards in Tokat, Turkey[J]. Phytoparasitica, 2008,36(5):491-501
[13] Zahedi-Golpayegani A, Saboori A, Sabelis MW. Olfactory response of the predator *Zetzellia mali* to a prey patch occupied by a conspecific predator[J]. Experimental & Applied Acarology, 2007,43(3):199-204
[14] Li GQ, Xue XF, Zhang KJ, *et al*. Identification and molecular phylogeny of agriculturally important spider mites (Acari: Tetranychidae) based on mitochondrial and nuclear ribosomal DNA sequences, with an emphasis on *Tetranychus*[J]. Zootaxa, 2010,2647:1–15
[15] 李国庆,于明志,洪晓月.基于核糖体 28S rRNA 对叶螨的鉴定及其系统发育分析[J]. 南京农业大学学报, 2010,33(5):49-54

(上接第 782 页)

4 结 论

本文通过简要分析和介绍常见的任务调度模型和任务窃取算法，着重分析了 Work-stealing 算法窃取策略。通过最大负载优先策略对传统 Work-stealing 进行改进，不但改善了传统算法在动态实时变化系统中的不足之处，而且通过快速选择窃取任务数量和窃取任务时机，改进算法的时间复杂度低，有较强的实时负载均衡能力。

参考文献

[1] Wickremasinghe B, Calheiros RN, Buyya R. Cloudanalyst: A cloudSim-based visual modeller for analyzing cloud computing environments and applications[C]// 24th IEEE International Conference on Advanced Information Networking Applications. Australia:IEEE, 2010:446-452
[2] Casanova H, Dongarra J. Net Solve: A network server for solving computational science problems[J]. International Journal of Suppercomputer Applications and High Performance Computing, 1997,11(3):212-223
[3] Zhao Y, Raicu I, Foster I, *et al.* Realizing fast, scalable and reliable scientific computations in grid environments[M]//Gird computing research progress. New York: Nova publisher, 2008
[4] Blumofe RD, Leiserson CE. Scheduling multi-threaded computations by work stealing[J]. J ACM, 1999,46(5):720-748