

RECENT RESEARCH HIGHLIGHT FROM THE JOURNAL OF THE WORLD AQUACULTURE SOCIETY

In each issue of *World Aquaculture*, we highlight a new and exciting research paper from the Journal of the World Aquaculture Society. This issue's selected paper, from the December 2018 issue of the Journal, is "Antibacterial Synergisms of Ji Xue Teng, *Spatholobus suberectus*, Extract and Selected Antibiotics against *Streptococcus agalactiae* from Nile Tilapia, *Oreochromis niloticus* (L.), In Vitro and In Vivo" by Wei-Liang Guo, Wen-Hui Wang, Wen-Ting Hu, Zhen-Yu Xie, Shi-Feng Wang, Yun Sun and Yong-Can Zhou.

Tilapia production in large-scale ponds is an important contributor to global aquaculture but must contend with bacterial pathogens, including *Streptococcus agalactiae*, which can kill more than half of the tilapia it infects. Effective microbial management of ponds is key. With antibiotic use heavily restricted to avoid resistance development, highly efficient and effective antibacterial treatments are essential when disease outbreaks occur. Any improvement in efficacy of antibiotics and any chance to reduce the effective dose concentration are valuable to commercial producers and improve sustainability. Synergistic effects of plant extracts and traditional antibiotics promise significant improvements in effect and efficiency in killing bacterial pathogens.

The authors report the efficiency of combining low doses of antibiotics with extracts from the legume Ji Xue Teng *Spatholobus suberectus*. Screening a broad range of antibiotics in combination with *S. suberectus* extract across a number of concentrations, they found synergies in antibiotic effect for plant extract combined with streptomycin sulphate. In vitro tests

indicated an approximate four-fold greater microbial inhibitory capacity for the plant extract in combination with the antibiotic when compared to either ingredient on its own, even at much higher concentrations.

Ultimately they were able to show that a combination of 0.13 mg/mL streptomycin sulfate and 5.95 mg/mL of *S. suberectus* extract offered microbial inhibition at the same level as the antibiotic at five times that dosage. Equally, *S. suberectus* is effective but not commercially viable at high dosage levels, and the synergistic combination with the antibiotic makes its use commercially viable at much lower doses. In vivo challenge tests showed the combination resulted in the highest relative survival in *S. agalactiae* infected tilapia, with 80.5 percent of infected animals surviving after oral administration of the combination in diets. The combined treatments also inhibited some bacteria where plant extract or antibiotics alone were completely ineffective. Implications in terms of resistance development due to extreme low dosage may, however, need to be assessed before commercial application.

Improved antibacterial effect through herbal extract combination with established antibiotics at very low doses represents a strong positive development for more sustainable therapies in aquaculture and may offer effective treatment of resistant pathogens during outbreaks.

This paper can be found in the Journal of the World Aquaculture Society 49(6):1002-1013 available at onlinelibrary.wiley.com/journal/10.1111/jwas.12516 or visit us under Publications at www.was.org.

— Matthew Slater, Section Editor, JWAS

2018 BEST PAPER AWARDS OF THE JOURNAL OF THE WORLD AQUACULTURE SOCIETY

The Editorial Board of the Journal of the World Aquaculture Society is pleased to announce the 2018 Best Paper Awards in the categories of Review Article, Applied Studies, and Fundamental Studies.

In the category of Review Article, the 2018 Best Paper Award has been awarded to Ganesh Kumar, Carole Engle, and Craig Tucker for their paper entitled "Factors Driving Aquaculture Technology Adoption." Their paper can be found in 49(3):447-476.

In the category of Applied Studies, the 2018 Best Paper Award has been awarded to Mouyan Jiang, Xingxing Wu, Kuangxin Chen, Hongrui Luo, Wei Yu, Shaoting Jia, Yongming Li, Yufeng Wang, Pinhong Yang, Zouyan Zhu, and Wei Hu for their paper entitled "Production of YY Supermale and XY Physiological Female Common Carp for Potential Eradication of this Invasive Species." Their paper can be found in 49(2):315-327.

In the category of Fundamental Studies, the 2018 Best Paper

Award has been awarded to Edén Magaña-Gallegos, Rodrigo González-Zúñiga, Gerard Cuzon, Miguel Arevalo, Eduardo Pacheco, Manuel A. J. Valenzuela, Gabriela Gaxiola, Elisa Chan-Vivas, Korinthia López-Aguilar, and Elsa Noreña-Barroso for their paper entitled "Nutritional Contribution of Biofloc within the Diet of Growout and Broodstock of *Litopenaeus vannamei*, Determined by Stable Isotopes and Fatty Acids." Their paper can be found in 49(5):919-932.

ANNOUNCING THE 2018 OUTSTANDING REVIEWERS FOR THE JOURNAL OF THE WORLD AQUACULTURE SOCIETY

The Editorial Board of the Journal of the World Aquaculture Society is pleased to announce the outstanding reviewers for the 2018 volume (49) of the Journal. Congratulations go to Dr. Md. Shah Alam, University of North Carolina Wilmington; Dr. Matthew DiMaggio, Tropical Aquaculture Laboratory, University of Florida; Dr. Celia Pitogo, Integrated Aquaculture International, Brunei Darussalam; and Dr. Carlo Lazado, NOFIMA, Norway.