

P. bliteus from Botucatu no endosymbionts were detected. *G. brimblecombei* population from Mogi-Guaçu presented Arsenophonus, Carsonella and Wolbachia, while the parasitoid *P. bliteus* presented Wolbachia. Thus, this infection is characterized as horizontal, by passing from the host to the parasitoid. Wolbachia may influence both the feminization of males and / or increase in the reproductive capacity of the pest and parasitoid. These aspects will be studied.

Effect of temperature on flight of *Cleruchoides noackae* (Hymenoptera: Mymaridae), parasitoid of *Eucalyptus* bronze bug

Luciane Katarine Becchi¹, Thamires Lima dos Santos¹, Flávia Galvan Tedesco¹, Carolina Jorge¹, Caroline Dias de Souza¹, Leonardo Rodrigues Barbosa², Carlos Frederico Wilcken¹

¹Universidade Estadual Paulista "Júlio de Mesquita Filho", Faculdade de Ciências Agrônomicas, Campus Botucatu, Botucatu, Brasil; ²Embrapa Florestas, Colombo, Brasil (becchiluciane@gmail.com; tmsantos111@gmail.com; flaviagtedesco@gmail.com; carolina.jorge@cut.edu.uy; xcarolinedias@gmail.com; leonardo.r.barbosa@embrapa.br; cwilcken@fca.unesp.br)

The egg parasitoid *Cleruchoides noackae* (Hymenoptera: Mymaridae) is the main biological control agent of *Thaumastocoris peregrinus* (Hemiptera: Thaumastocoridae), an exotic pest that threatens *Eucalyptus* plantations worldwide. Was evaluate the quality of *C. noackae* in the laboratory by the flight test, at different temperatures. The ESALQ model test unit was used, consisting of a PVC cylinder with the interior covered by black cardboard. On the inner wall an entomological stick ring (0.5 cm wide) was placed to 3.5 cm from the lower to determine parasitoid walkers. To determine flying parasitoids, a Petri dish with stick was embedded in the upper part of the cylinder. A hundred eggs of *T. peregrinus* parasitized by *C. noackae* were individualized in glass tubes, fixed in the center of the test units and placed in climatic chamber at 20, 25 and 30 ± 2 °C, RH: 60 ± 10% and 24:0 photoperiod (L/D). The experimental design was completely randomized with five replicates. Data were analyzed by ANOVA and compared by Tukey test. The increase in the percentage of flying parasitoids was directly proportional to the temperature increase, varying from 29 to 74%, at 20 and 30 °C, respectively. Highest percentage of walking parasitoids (60%) was observed at 20 °C, while at 25 °C there was no difference between flying and walkers. At 30°C, 74% of the parasitoids were classified as flying and 20% as walkers. The temperature affected the *C. noackae* flight in the laboratory. It is suggested to release *C. noackae* in the field at temperatures above 20 °C.

Lignocellulase from Basidiomycota fungi cultivated in woody biomass / Lignocelulases de fungos Basidiomycota cultivados em biomassa lenhosa

Anna Sofya Vanessa Silvério da Silva¹, Fernando Nunes Gouveia¹, Marcelo Fontana da Silveira¹, José Roberto Victor de Oliveira¹, Helson Mario Martins do Vale², Eliane Ferreira Noronha²

¹Serviço Florestal Brasileiro, Brasília, Brasil; ²Universidade de Brasília, Brasília, Brasil (anna.silva@florestal.gov.br; fernando.gouveia@florestal.gov.br; marcelo.silveira@florestal.gov.br; jose.oliveira@florestal.gov.br; helson@unb.br; elinoronha@gmail.com)

A madeira é uma matéria-prima obtida das árvores, de constituição heterogênea e variável por ser um produto do seu metabolismo. Em virtude da sua composição química básica (celulose, hemicelulose e lignina) pode representar importante substrato para produção de enzimas por organismos xilófagos, especialmente por fungos do Filo Basidiomycota, os quais desenvolveram sistemas bioquímicos complexos capazes de converter e mineralizar a lignocelulose. Esse processo natural pode ser utilizado para fins industriais, como na produção de celulose e na conversão, de alto valor agregado, de resíduos lignocelulósicos em biorrefinarias. Foi realizado screening em meio sólido MYG modificado. Em seguida, foi avaliada a produção de enzimas celulolíticas, hemicelulolíticas e ligninolíticas por fungos de podridão branca e parda cultivados em meio mínimo líquido contendo serragem de *Swartzia psilonema* como única fonte de carbono. Foram determinadas as curvas de crescimento por quantificação da proteína intracelular. Os fungos *Trametes versicolor*/Mad 697, *Bjerkandera fumosa*/L-15918-Sp, *Gloeophyllum trabeum*/Mad 617 e *Meruliporia incrassata*/Piirto-31 apresentaram maior halo de degradação. *Trametes versicolor*/Mad 697 apresentou as maiores atividades específicas de lacases, xilanases e endoglucanases. *Bjerkandera fumosa*/L-15918-Sp apresentou maior taxa de crescimento. A maior atividade de celulases totais foi observada em *Meruliporia incrassata*/Piirto-31. Os extratos brutos fúngicos que apresentaram atividade específica representam fonte potencial de enzimas que podem ser empregadas em coquetéis destinados à despolimerização da biomassa lenhosa.

Effects of parasitism by *Tetrastichus howardi* (Hymenoptera: Eulophidae) on *Oxydia vesulia* caterpillars (Lepidoptera: Geometridae)

Rafaella Freitas Pavan¹, Ana Laura Favoreto¹, Murilo Fonseca Ribeiro¹, Carolina Jordan¹, Carlos Frederico Wilcken¹

¹Universidade Estadual Paulista "Júlio de Mesquita Filho", Faculdade de Ciências Agrônomicas, Botucatu, Brasil (rfpavan@gmail.com; analaurafavoreto@gmail.com; murilo.fon.rib@gmail.com; carolinajordan@gmail.com, carlos.wilcken@unesp.br)

Adaptation of dietary habits of native lepidopteran species to eucalyptus plantations has become a treat to productivity in Brazil. Considered as a secondary pest, *Oxydia vesulia* (Lepidoptera: Geometridae) is frequently reported in *Eucalyptus* plantations and associated with outbreaks and economic damages. New methods have been tested to control several lepidopterous-pests and *Tetrastichus howardi* (Hymenoptera: Eulophidae), a pupae endoparasitoid, that has been reported as efficient for control caterpillars on major crops. Despite being a pupae parasitoid, its parasitism was tested in *O. vesulia* caterpillars. Fourth instar caterpillars were offered to the parasitoids, 10 parasitoids per larvae, with 24 hours old. After exposure larvae were kept in pots with leaves of *Eucalyptus urophylla* changed daily until the pupal stage, kept under laboratory controlled conditions (25 ± 1 °C, RH: 60 ± 10% and photophase: 12 h). *T. howardi* did not emerged from parasitized *O. vesulia* caterpillars, however positive results were found for pest control. A total of 40% of the caterpillars died before reaching the prepupal stage, other 40% reached the pupal stage and died due poor formation or problems at emergence and 20% survived. Although the parasitoid has not been able to complete its cycle in caterpillars, it shows itself as promising in controlling the pest in its most critical stage of occurrence. Studies on the potential parasitism of *T. howardi* on *O. vesulia* in the field must be developed to verify the effectiveness of this parasitoid.

Multiplication and release of the imported natural enemy *Selitrichodes neresi* (Hymenoptera: Eulophidae) for the biological control of the wasp, *Leptocybe invasa* (Hymenoptera: Eulophidae) in *Eucalyptus* plantations in Brazil

Luiz Alexandre Nogueira de Sá¹, Bárbara Oliveira Poretz², Carlos Frederico Wilcken², Leonardo Rodrigues Barbosa³, Luis Renato Junqueira⁴, José Cola Zanuncio³

¹Embrapa Meio Ambiente, Laboratório de Quarentena "Costa Lima", Jaguariúna, Brasil; ²Universidade Estadual Paulista "Júlio de Mesquita Filho", Faculdade de Ciências Agrônomicas, Botucatu, Brasil; ³Embrapa Florestas, Colombo, Brasil; ⁴Instituto de Pesquisas e Estudos Florestais, Piracaicaba, Brasil (luiz.sa@embrapa.br; barbaraporetz@gmail.com; carlos.wilcken@unesp.br; leonardo.r.barbosa@embrapa.br; renato@ipef.br; zanuncio@ufv.br)

High productivity and short rotation have made *Eucalyptus* the most cultivated plant in the world for the production of raw material for various industrial sectors. The exotic wasp, *Leptocybe invasa* (Hymenoptera: Eulophidae) from Australia, has spread rapidly in the world. *Leptocybe invasa* was registered in