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High *Wolbachia* infection rate in four-eyed fir bark beetle (*Polygraphus proximus*) populations of Tomsk province

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Motivation and Aim: The four-eyed fir bark beetle (*Polygraphus proximus*) is invasive pest of the Siberian fir [1]. Studying of its biology, in particular associations with any bacterial symbionts, may be important for biological control of this pest. Bacteria of the genus *Wolbachia* are common symbionts of many insects [2]. In some cases, these bacteria play significant role in host biology. This is the first study of *Wolbachia* infection in *P. proximus* populations.
Methods and Algorithms: The collection includes 152 samples of *P. proximus* from five regions of Tomsk province. Total DNA was individually extracted from whole beetles. *Wolbachia* detection was performed by PCR with primers specific to two housekeeping loci of *Wolbachia*. Infection rates were estimated for each studied locality. The multilocus sequence typing approach was performed to characterize *Wolbachia* isolates.
Results: *Wolbachia* symbiont was found in all studied localities of Tomsk province, in particular in Chainsky (44 %), Molchanovsky (42 %), Bakcharsky (23 %), Krivosheinsky (77 %) and Tomsky (51 %) regions. The average infection rate was 47 % (95 % confidence interval, 39–56 %).
Conclusion: Here we firstly report on *Wolbachia* infection in *P. proximus*. Our data suggests of high *Wolbachia* infection rate in the populations of four-eyed fir bark beetle of Tomsk province. Further analysis of *Wolbachia*–*P. proximus* interactions may be used to develop new approach to control four-eyed fir bark beetle populations.
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References

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