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## **DIFFERENTIATION OF LAST FORMED TRACHEIDS IN WOOD OF SILVER FIRS (*Abies alba*) HAVING VARIOUS CAMBIAL PRODUCTIVITY**

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### **Abstract**

To examine the state of differentiation of the last tracheids formed in wood and the duration of cambial activity, samples of wood and cambium were taken from mature silver fir (*Abies alba*) trees having various cambial productivity. Semi-thin cross-sections of wood sampled in July and October, 1999, were stained with toluidine blue and observed under a light microscope. In July, three different phases of current annual xylem growth ring formation were found, as a result of various cambial productivity of trees. In October, the cell divisions in the cambium were completed in all investigated trees, while the process of differentiation was not entirely completed in trees with a more productive cambium. The number of undifferentiated tracheids was higher in trees having a more productive cambium. In these trees, the cambial activity and the differentiation ended later. In declining trees, the number of cells produced by the cambium was lower and the duration of cambial activity was shorter.

Key words: silver fir (*Abies alba*), wood, tracheids, cambial activity, differentiation

### ***DIFERENCIACIJA ZADNJIH NASTALIH TRAHEID V LESU JELK (*Abies alba*) Z RAZLIČNO PRODUKTIVNIM KAMBIJEM***

#### ***Izvleček***

*Raziskali smo stanje diferenciacije zadnjih nastalih traheid lesa tik ob kambiju ter trajanje kambijeve aktivnosti pri jelkah (*Abies alba*) z različno produktivnim kambijem. Vzorce lesa in kambija smo odvzeli iz odraslih jelk julija in oktobra 1999. Poltanke rezine prečnega prereza smo obarvali s toluidin modrim ter proučili pod svetlobnim mikroskopom. Julija smo zasledili 3 različne faze nastajanja lesa v braniki tekočega leta, kar se je skladalo z različno kambijevo produktivnostjo dreves. Oktobra celičnih delitev v kambiju nismo zasledili pri nobenem od proučevanih dreves; proces diferenciacije v zadnjih nastalih traheidah pa pri produktivnejših drevesih še ni bil zaključen. Število nediferenciranih celic v lesu je bilo pri produktivnejših drevesih značilno višje, kambijeve aktivnosti ter diferenciacija pa sta se zaključili kasneje, kot pri drevesih z manj produktivnim kambijem. V kambiju prizadetih dreves je bilo število nastalih celic nižje, trajanje kambijeve aktivnosti pa krajše.*

*Ključne besede: navadna jelka (*Abies alba*), les, traheide, kambijeve aktivnosti, diferenciacija*

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