



Hydroxy lactones with the gem-dimethylcyclohexane system : synthesis and antimicrobial activity.

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Streszczenie

Two new lactones comprising the gem-dimethylcyclohexane ring: 2-chloro-5,5-dimethyl-9-oxabicyclo[4.3.0]nonan-8-one and 2-bromo-5,5-dimethyl-9-oxabicyclo[4.3.0]nonan-8-one as well as the already known 2-iodo-5,5-dimethyl-9-oxabicyclo[4.3.0]nonan-8-one, were obtained from (6,6-dimethylcyclohex-2-en-1-yl)acetic acid. These lactones were used as substrates for the screening of biotransformation by whole cells of nine fungal strains (*Fusarium* species, *Syncephalastrum racemosum* and *Cunninghamella japonica*). Some of these microorganisms (mainly *Fusarium* species) transformed all three lactones during the hydrolytic dehalogenation into 2-hydroxy-5,5-dimethyl-9-oxabicyclo[4.3.0]nonan-8-one. It is worth noting that two microorganisms (*Fusarium culmorum* and *Fusarium scirpi*) converted iodolactone with very high enantioselectivity (75.1% and 91.6%, respectively). The (+) isomer of hydroxy lactone was preferred. At the last step the hydroxy lactone obtained during biotransformation was examined for its biological activity against bacteria, yeasts and fungi. It was found that this compound inhibits growth of some tested microorganisms.

Słowa kluczowe

lactones, biotransformations, Hydrolytic dehalogenation, *Fusarium* species, antimicrobial activity

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