

Antiangiogenic activities of polysaccharides isolated from medical fungi,)

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摘要

Abstract

Extracted polysaccharides from medicinal fungi, including *Antrodia cinnamomea*, *Antrodia malicola*, *Antrodia xantha*, *Antrodiella liebmannii*, *Agaricus murrillii*, and *Rigidoporus ulmarius*, were investigated for their effects on vascular endothelial growth factor (VEGF)-induced tube formation in endothelial cells (ECs). Chemical analysis revealed that myo-inositol, sorbitol, fucose, galactosamine, glucosamine, galactose, glucose, and mannose were the neutral sugars in these polysaccharides. These fungal polysaccharides showed no toxicity to ECs. For the inhibition of endothelial tube formation, extracted polysaccharides from *A. xantha* and *R. ulmarius* were shown to produce greater inhibition compared to those from other fungi. Fucose, glucose and mannose were the predominant monosaccharides from these two fungi. These results suggest that monosaccharides may play a role in the inhibitory effect of these fungi on endothelial tube formation. In contrast to the inhibition on tube formation from polysaccharides of *A. cinnamomea* and *A. malicola*, polysaccharides from *A. xantha* and *R. ulmarius*, with molecular weight between 2693-2876 and 304-325 kDa, were critical for this inhibitory activity. Our results show that polysaccharides isolated from *A. xantha* and *R. ulmarius* provide greater antiangiogenesis than those from commercialized *A. murrillii* (Brazilian mushroom) and *A. cinnamomea*. These studies provide a basis for the potential development of these polysaccharides for antiangiogenesis usage.