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The role of biofilm, the super virulence factor in pathogenicity of the yeasts from the genus *Candida*

Biofilms formed by *Candida* species (spp.) are a heterogeneous community of cells adhering to various surfaces (biotic and abiotic) and surrounded by an extracellular matrix. These yeasts are able to form biofilms on medical devices that can be a source of the life-threatening infections. The most frequent *Candida* isolated from clinical material is *Candida albicans*, but non *Candida albicans* spp., like *Candida parapsilosis* are on the rise. Generally, biofilm can be assumed to be the “super” virulence factor, as it represents a set of particular virulence factors that cooperate and assist each other. Moreover, resistance to conventional drugs manifested in biofilms is an important supporting virulence factor. The switching from the yeast to the mycelial form is an important feature of biofilms formed by already mentioned *Candida* spp. Both morphological forms co-exist together and dominant position of one or other is usually dependent on environmental stimuli, but also on elevation of quorum sensing molecules. The cell surface hydrophobicity is the phenomenon affected by the organization of the cell wall and it is also dependent on the physicochemical parameters of environment. Hydrophobicity directly participates in adherence which is the critical step in biofilm formation. Adherence is also associated with an expression of different adhesive molecules, for example, those from ALS (agglutinin-like sequences) family or other “mimicry” proteins triggering the host immune response. The current challenge concerning the study of microbial biofilms is focused on understanding the key virulence factors “hand in hand” with searching for new options in biofilm eradication.

Biography

Helena Bujdakova is the Head of the Department of Microbiology and Virology, Faculty of Natural Sciences, Comenius University in Bratislava, Slovakia and Vice President of the Czechoslovak Society for Microbiology. She has received Fulbright and JSPS scholarships for research/teaching stays in USA and Japan. She is a Specialist in Medical Microbiology, her current research is focused on various topics dealing with microbial biofilms, especially, aimed at yeasts of the genus *Candida*. She has published more than 60 articles indexed in reputed databases.

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