PRESS RELEASE

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My dishwasher is trying to kill me

New research finds harmful fungal pathogens living in dishwasher seals

Oxford, 16 June 2011 - A potentially pathogenic fungus has found a home living in extreme conditions in some of the most common household appliances, researchers have found. A new paper published in the British Mycological Society journal, *Fungal Biology*, published by Elsevier, shows that these sites make perfect habitats for extremotolerant fungi (which includes black yeasts). Some of these are potentially dangerous to human health.

Modern living comes with an increasing need for electrical household equipment such as dishwashers, washing machines and coffee machines. A characteristic of these appliances is a moist and hot environment. In the case of dishwashers, high temperatures between 60º to 80ºC are intermittently produced and aggressive detergents and high concentrations of salt are used in each washing cycle.

The article focuses on the occurrence of potentially pathogenic fungal flora located in dishwashers, over a sample of private homes from 101 cities on 5 continents. 62% of the dishwashers contained fungi on the rubber band in door, 56% of which accommodated the polyextremotolerant black yeasts *Exophiala dermatitidis* and *E. phaeomuriformis*. Both *Exophiala* species showed remarkable tolerance towards heat, to high salt concentrations, to aggressive detergents, as well as to both acid and alkaline water. This is a combination of extreme properties not previously observed in fungi.

Exophiala species are rarely isolated from nature, but they are frequently encountered as agents of human disease, both in compromised and healthy people. They are also known to be involved in pulmonary colonization of patients with cystic fibrosis, and also occasionally cause fatal infections in healthy humans. The invasion of black yeasts into our homes represents a potential health risk.

The discovery of this widespread presence of extremophilic fungi in some of our common household appliances suggests that these organisms have embarked on an extraordinary evolutionary process that could pose a significant risk to human health in the future.

The article, “Dishwashers – A man-made ecological niche accommodating human opportunistic fungal pathogens” by P. Zalar, M. Novaka, G.S. de Hoog and N. Gunde-Cimermana appears in the journal, *Fungal Biology* (doi:10.1016/j.funbio.2011.04.007).

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Notes for Editors

Full text of the article is available to credentialed journalists upon request; contact newsroom@elsevier.com. Journalists wishing to interview the author may contact Nina Gunde-Cimerman, at nina.gunde-cimerman@bf.uni-lj.si

Full article citation: P. Zalar, M. Novak, G.S. de Hoog, N. Gunde-Cimerman, Dishwashers - A man-made ecological niche accommodating human opportunistic fungal pathogens, Fungal Biology, In Press, Corrected Proof, Available online 7 May 2011, ISSN 1878-6146, DOI: 10.1016/j.funbio.2011.04.007.

About Fungal Biology

Fungal Biology (www.elsevier.com/locate/funbio) is a journal of British Mycological Society. Fungal Biology is the international research journal of the British Mycological Society. *Fungal Biology* publishes original contributions in all fields of basic and applied research involving fungi and fungus-like organisms (including filamentous fungi, yeasts, lichen fungi, oomycetes, and slime moulds). These fields include biochemistry, biodeterioration, biotechnology, cell biology, developmental biology, disease control, ecology, environment, evolution, fungal physiology, genetics, genomics, geomycology, insect pathology, medical mycology, molecular genetics, mutualistic interactions, physiology, plant pathology, secondary metabolites, taxonomy and systematics, and techniques.

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