

CROSS-INFECTIVE MICROBES: FROM PLANTS TO HUMANS

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Microorganisms that infect and cause disease in both plants and people are uncommon but increasing in frequency of isolation. These cross-infective microorganisms are more insidious than those simply transmitted to humans by contact or consumption of plants. Currently 22 bacterial taxa and 38 fungal taxa have been reported as causing 'phytoses'. Several examples of bacterial and fungal diseases of plants and corresponding human disease will be presented. Questions that arise include accuracy of systematics analyses, role and similarity of virulence factors, genomic and pathogenicity islands and antimicrobial resistance. Newer biological techniques such as synthetic biology, illustrated by the construction of new viruses and DNA shuffling or intragenomic reconstruction, complicate oversight and regulatory action. Regulatory challenges among presumed equivalent taxa among plant and medical communities include definition and assessment of risk groups, permitting for interstate transport and differential perspective on the use and formulation of regulatory agency guidance documents. Assessment of alternatives for microbial pesticide niche markets will be presented. Potential interagency programs on cross-over pathogens will be discussed. The major challenge for agencies with regulatory responsibility for microbial biopesticides is the assessment and accuracy of taxa and scope of both natural and modified biological variations that may be used and their genomic stability. Management of cross-infective diseases of both plants and animals will require more interdisciplinary research and cooperative agency interactions.

References:

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