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Pathogenicity and commercial potential of phospholipases

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Phospholipases catalyze the hydrolysis of one or more ester and phosphodiester bonds of glycerophospholipids. Significant studies on phospholipases optimization, characterization, physiological role and industrial potential have been conducted worldwide. Some of them have been directed for biotechnological advances such as gene discovery and functional enhancement by protein engineering. Others reported phospholipases as virulence factor and major cause of pathophysiological effects with microbial infection. All class of phospholipases can be involved as virulence factor. Destruction of phospholipids by pathogenic bacteria/fungal phospholipases and subsequent change of membrane constituents lead to cell damage which is regarded to be a major virulence mechanism in infection. The importance of phospholipase in virulence is proven and inhibitors of the enzyme can be used as candidate for preventing the associated disease.

Phospholipase are used as tool for scientific research in hydrolysis, synthesis and trans-phosphotidylation. Other applications of phospholipase include use in oil refinery industry, health food industry, as diagnostic markers for microbial infection, and preparation for skin and denture cleansers.

There is a need and potential for extensive research in the area of phospholipases to understand the commercial and medical applications. A general overview on phospholipase is required for the identification of new reliable and efficient phospholipase.

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