from two other species (*Macrotermes natalensis* and *Macrotermes goliath*) (Cmelik, 1969). Two other species (*Coptotermes lacteus* and *Nasutitermes exitiosus*) (Moore, 1969) showed only four fatty acids. The 13 fatty acids recorded in the species *O. assmuthi* are C_{10:0}, C_{12:0}, C_{14:0}, C_{15:0}, C_{16:0}, C_{17:0}, C_{18:0}, C_{16:1}, C_{18:1}, C_{18:2}, C_{18:3}, C_{20:0} and C_{22:0}.

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Effects of Cabbage Phospholipase D on the Lipids and Enzyme Activities of Rat Liver Microsomal Fraction

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Phospholipase A cleaves fatty acid chains and phospholipase C removes polar groups (phosphorylcholine, phosphorylethanolamine and phosphorylserine) from membrane phospholipids. The activities of certain membrane-bound enzymes of isolated mitochondrial and microsomal membranes are profoundly affected under the action of these phospholipases *in vitro* (Awasthi *et al.*, 1969; Poulter *et al.*, 1971). The specificity of the action of phospholipase is now beginning to prove useful in obtaining and understanding the role of polar and non-polar regions of phospholipid molecules in the maintenance of structure and function in biological membranes.

Phospholipase D specifically removes only bases from isolated phospholipids (Kates, 1965; Davidson & Long, 1958; Talwalkar *et al.*, 1969) and also mediates transphosphatidylolation in the presence of choline, ethanolamine, serine, glycerol etc. (Yang *et al.*, 1966). Its action on biological membranes does not seem to have been adequately studied.

The action of partially purified phospholipase D of savoy cabbage on rat liver microsomal fraction has been studied. Evidence is presented for the degradation of membrane phospholipids with concomitant loss of glucose 6-phosphatase and adenosine triphosphatase activities in phospholipase D-treated microsomal fraction and release of phospholipid bases, cholesterol, uncharacterized lipid and protein (including glucose 6-phosphatase and adenosine triphosphatase) into the medium. The results obtained indicate a role for phospholipid bases in the binding of membrane cholesterol and protein.

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Do Phospholipases Cause the Breakdown of Mitochondrial Membrane?

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The essential role of phospholipids in the structural and functional integrity of mitochondrial membrane needs no stressing. Any study of the assembly and disassembly of this membrane must take into consideration the phospholipid metabolism.

We have confined ourselves in this investigation to the changes in the phospholipase D content of yeast cells under conditions where mitochondria are being disintegrated (glucose repression) and assembled (de-repression). The enzyme content remains high during the repression period and decreases during the de-repression phase, concomitant with an increase in the O₂ uptake (and, by implication, the mitochondrial content of the cell). Extension of the repression phase by adding glucose keeps the enzyme content high throughout. Yeast cells grown in maltose, which does not have any repressing effect on the O₂ uptake, have low contents of the enzyme. Addition of glucose to maltose-grown cells raises the enzyme content. In a similar way, addition of chloramphenicol, which blocks the mitochondrial assembly, increases the content of the phospholipase D.

In short, under circumstances where the mitochondria are disintegrated *in vivo* the phospholipase D content of the yeast cells is high. Conversely the enzyme content remains low when mitochondria are formed. The crucial question as to whether the increase in the phospholipase D content is the cause or the effect of the breakdown of the mitochondrial membrane is yet to be answered.