m.equiv./kgm. yeast[10]. The iron content of yeast is about 0·60 m.equiv./kgm. wet yeast, mostly present in the cell wall[11], and the copper content about 0·06 m.equiv./kgm. Thus there is insufficient copper for binding the potassium but more than enough iron to act in the carrier enzyme.

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Active Transport of Magnesium

The general cation carrier in the yeast cell wall, referred to in the foregoing communication, can transport large amounts of magnesium into the cell during fermentation, when magnesium is the only cation present (apart from H^+) in the suspending fluid, and this has a *p*H of about 7·0. Thus when 1 gm. of centrifuged baker's yeast is suspended in 20–100 ml. of 5 per cent glucose containing 0·2 *M* magnesium acetate, about 100 millimoles of magnesium are taken up in 7 hr. The Mg^{++} exchange for hydrogen ions in a similar way to the active uptake of K^+[1,2].

When sodium is taken up in a similar way it can be actively excreted by the yeast cells when these are washed and suspended in water. The excretion rate is much increased if the suspending fluid contains 0·1 *M* potassium chloride. In the latter case, sodium exchanges for K^+. On the other hand, magnesium accumulated in such a manner is not appreciably excreted on subsequent suspension in water or potassium chloride solution, even when glucose is added to the extent of 5 gm. per 100 ml.

Although very large amounts of magnesium can be taken up in this way by the yeast cell, the process seems to have no physiological significance, for it is almost fully inhibited by 2 m*M* K^+ in the presence of 200 m*M* Mg^{++}.

There is another mode of active magnesium uptake which has been studied by Rothstein[3], and also by Schmidt, Hecht and Tannhauser[4]. This occurs at or near a *p*H of 4·5 in association with phosphate and is increased by the presence of K^+. It would appear to be the normal mode of magnesium uptake during fermentation.

The active transport of magnesium by the general cation carrier requires the presence of oxygen, though the uptake of potassium by the same carrier can occur anaerobically. This may by explained by the inability of the redox system, when carrying the divalent Mg^{++}, to transfer its electrons to the acceptor system in anaerobic yeast. The active transport is inhibited by cyanide and azide as well as by anoxia. Of considerable interest is the fact that the active transport of magnesium, when this is present as the acetate, is not inhibited by 2,4-dinitrophenol (2 m*M*). Thus the evidence indicates that this active transport of magnesium after its attachment to the initial redox carrier requires the cytochrome–oxygen system for the further transfer of electrons and release of the transported Mg^{++} into the cell.

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A NEW METHOD FOR THE EXTRACTION OF DEOXYRIBONUCLEIC ACID FROM BACTERIA

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The extraction of deoxyribonucleic acid from bacteria, in a non-degraded state, raises some difficulties because of the presence around the bacterial body of resistant envelopes which prevent a rapid liberation in the medium of the molecules to be extracted. The method used by McCarty and Avery[1] consists of the lysis of the germs with sodium deoxycholate in the presence of sodium citrate as an inhibitor of deoxyribonuclease. This method yields a deoxyribonucleic acid highly polymerized and presenting a great biological specificity, but it is unfortunately limited to *Pneumococcus* and a very few other germs. The method of autolysis of bacteria, indicated by Boivin and Vendrely[2], allowed only the preparation of samples of deoxyribonucleic acid partially depolymerized. The methods, including mechanical processes of disruption of the germs (use of 'ball mills', shaking with glass beads, grinding with various abrasives)[3] are tedious and the yield is low and irregular.

We have devised a simple method for the extraction of bacterial deoxyribonucleic acid, using the lysozyme as a first step for the attack on the envelopes of the bacteria. This technique proved satisfactory for all