

Fig. 4.13: Role of β -oxidation in the conversion of stored triacylglycerols to glucose in germinating seeds.

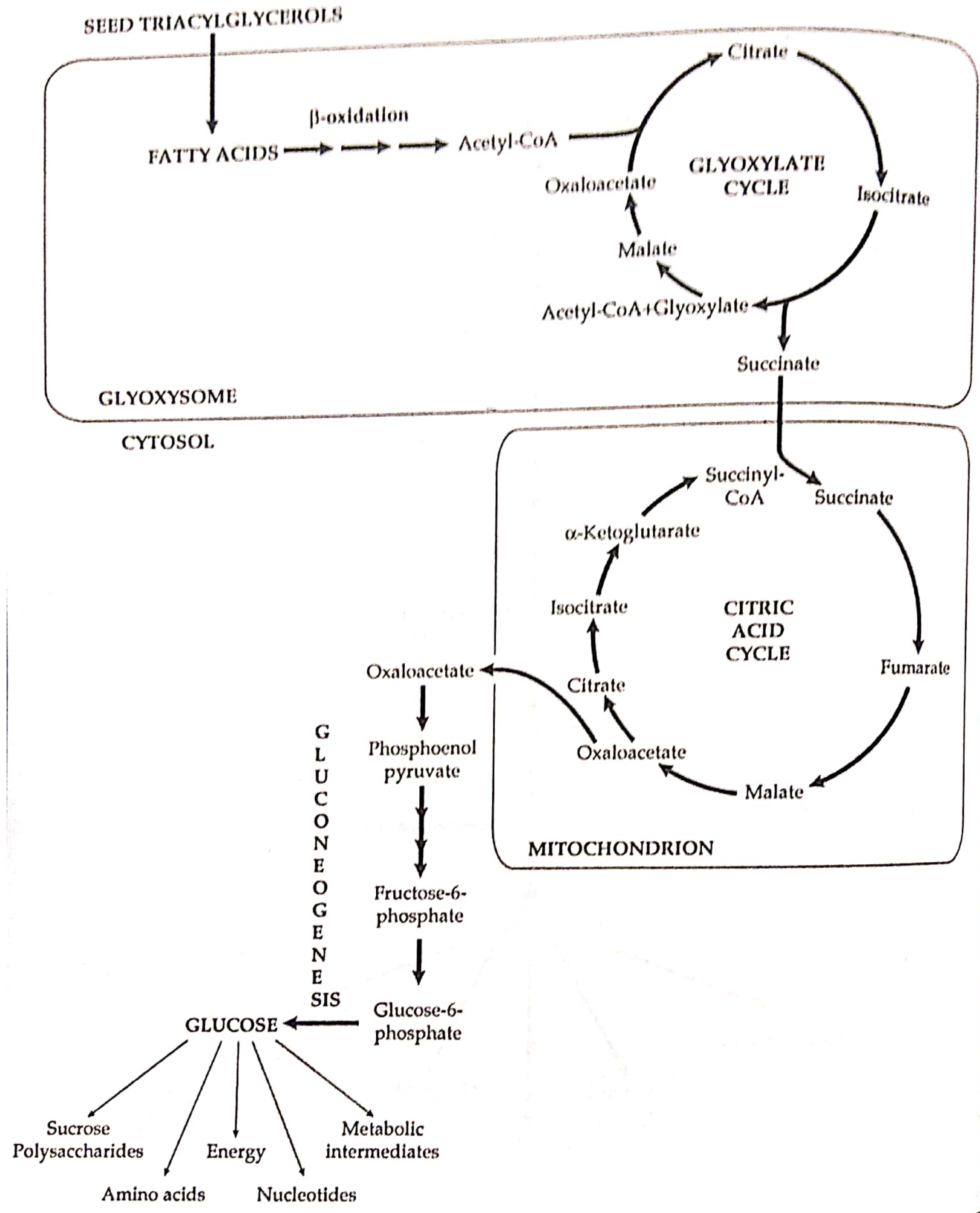


Fig. 4.14: Conversion of stored Triacylglycerol to Glucose in germinating fatty seeds : This pathway begins in glyoxysomes. Succinate is produced and exported to mitochondria, where it is converted to Oxaloacetate by enzymes of the citric acid cycle. Oxaloacetate enters the cytosol and serves as the starting material for gluconeogenesis. The Glucose is then utilised for the synthesis of sucrose, the transport form of carbon in plants, different amino acids, nucleotides, as a source of energy and other metabolic intermediates.

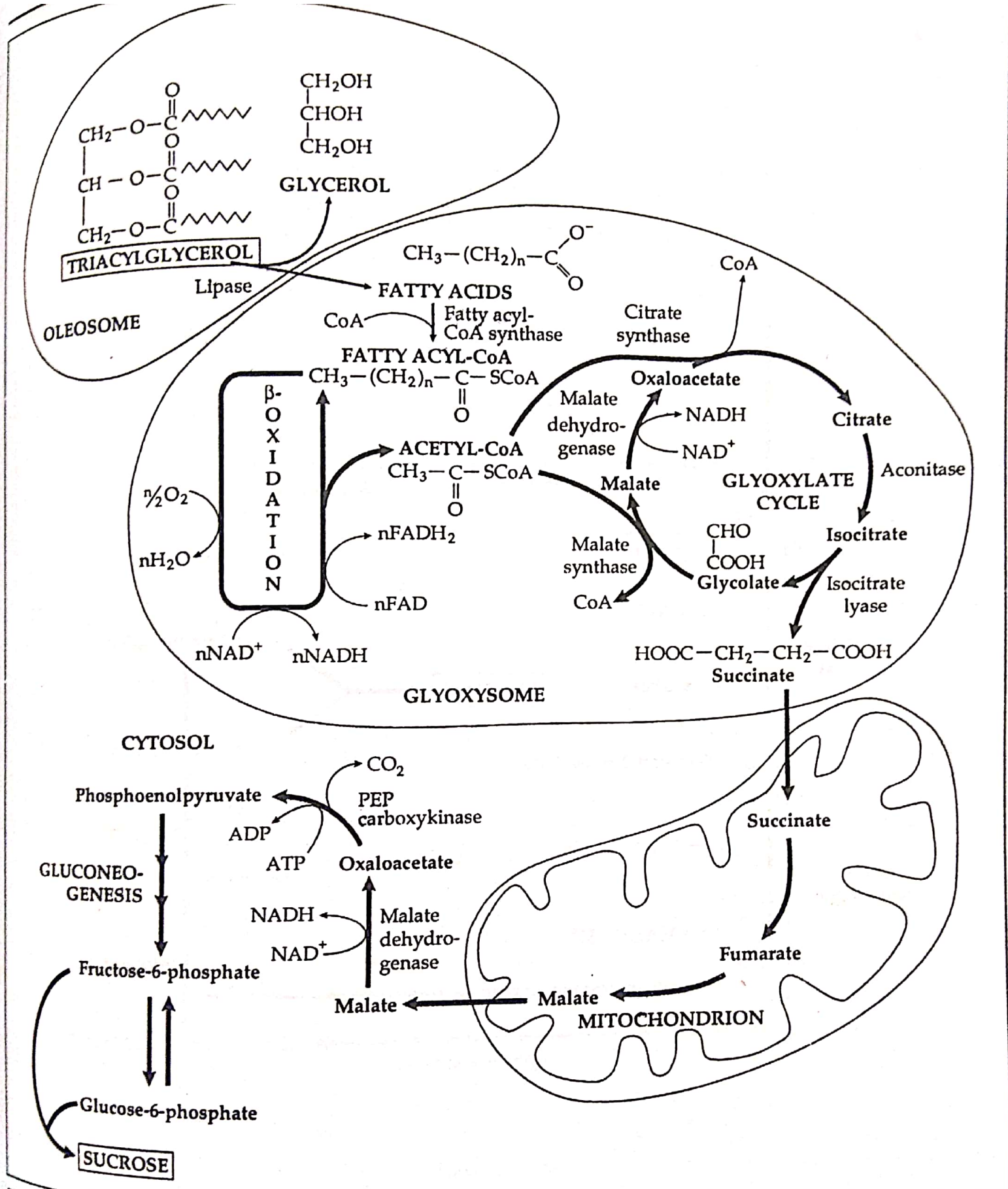


Fig. 4.15: The conversion of fats to sugars during germination in oil-storing seeds : Carbon flow during fatty acid breakdown and gluconeogenesis. Triacylglycerols in the oleosome are hydrolysed to yield fatty acids, which are metabolised to Acetyl-CoA in the glyoxysome through β -oxidation pathway. In this pathway produced Acetyl-CoA then enters to glyoxylate cycle and generates Succinate, which is then transported to mitochondrion and converted ultimately to Malate. The resulting Malate is then transported into the cytosol and oxidised to Oxaloacetate, and converted into Phosphoenolpyruvate which through the process of gluconeogenesis is ultimately converted into F-6-P and G-6-P which make together sucrose.