Aim and Scope
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The way in which the mature seed exposed to suitable germination conditions passes from a quiescent to a highly active metabolic state is a topic of increasing interest. Germination and seedling growth require synthesis of new cells and cell organelles and energy which is provided by respiration involving the oxidative breakdown of biochemical constituents such as sugars and fatty acids to yield ATP. Seeds are endowed with food reserves, characteristic and growth of the axis during germination. Although the mobilization of reserve food from storage tissue (cotyledon) is well known to occur during germination, the metabolic changes that occur appears to be more complex. The cotyledon cell population is primarily composed of large parenchyma cells, whose major role is to supply embryonic axis with nutrients during the early stages of germination. Cotyledons of germinating seeds are considered to be senescing tissue, but during the first few days of germination substantial increase in the level of RNA was observed. It was shown that the pattern of RNA content per cotyledon closely resembled the pattern of activity of several enzymes which appear to be active during germination.
Current position with regard to the reserve mobilization and pattern of development of related enzymes in the cotyledons of germinating seeds have been summarised in recent reviews (Bewley and Black, 1978; Mayer and Poljakoff-Maybar, 1982; Murray, 1984). However, the information available from various studies with oil seeds is not adequate enough to evolve a common mechanism if any on the mobilization of oil reserves and its regulation.

Lipases with different pH optimum appear to bring about degradation of triglyceride stores of seeds during germination. Acetyl Co-A formed in the mitochondria during β-oxidation of liberated fatty acids is channelled for the synthesis of hexoses involving glyoxylate cycle. The major proportion of lipolytic products are converted to hexose and finally to sucrose, a part of which may be hydrolyzed therein and a part may be translocated to the growing axis for utilization.

The present study is an attempt in furthering the knowledge on mobilization of food reserves in germinating oil seeds. The data presented in this study is a preliminary study on germinating safflower seeds (Carthamus tinctorius L.) on the pattern of mobilization of food reserves and the development of related enzymes.

Focussing on the metabolic changes during germination
of safflower seeds, the present study investigates

(a) the pattern of mobilization of the oil reserves by following the changes in total lipids, triacylglycerols and phospholipids and the development of lipase;

(b) the pattern of development of gluconeogenic pathway by measuring the key enzyme of the glyoxylate pathway namely isocitrate lyase and also by following the changes in the carbohydrate components (starch, total soluble carbohydrates, reducing sugars and non-reducing sugars); and

(c) the developmental pattern of invertases which control the metabolism of sucrose formed during gluconeogenesis.

The conclusions drawn from the data obtained during this study are summarized at the end after presentation of the data and discussion.