ABSTRACT

Several reviews on sperm metabolism have pointed out that mammalian sperm exhibit mainly glycolytic activity under both aerobic and anaerobic condition (Peterson and Freund, 1976; Voglmayr, 1975). Phosphofructokinase, one of the glycolytic enzyme, was suggested to be involved in the control of glycolysis in human spermatozoa (Peterson and Freund, 1970). This enzyme from many tissue (e.g. skeletal muscle, brain etc.) have been studied extensively but it is very little in reproductive system. There was four types of phosphofructokinase in human and rat tissues; two of the four are found in rat testes (Tanaka, 1971). The changes in isozymic pattern of pyruvate kinase and hexokinase were found in testes and sperm during spermatogenesis and sperm maturation (Kunaporn, 1977; Mongkolsririkieat, 1978). It is valuable to study whether or not there are changes in the phosphofructokinase isozymic pattern during spermatogenesis and sperm maturation.

The kinetic properties of phosphofructokinase from crude extracts of human testicular cells and ejaculated sperm were compared. The pH optimum of this enzyme from testes and sperm were both in alkaline range around 8.4 and 9.2 respectively. The Michaelis-Menten constants for both substrates, ATP and F6P, in the presence and in the absence of effectors were also studied. The results suggest that there are differences between the testicular-cell phosphofructokinase and ejaculated sperm enzyme.

The profiles from DEAE-cellulose columns of the enzyme from immature testes, mature testes and ejaculated sperm indicate that there are some changes in isozymic pattern of this enzyme during spermatogenesis.
BIOGRAPHY

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