SUMMARY

As small as 1300 units of thiaminase enzyme extracted from raw clams (Paphia sp.) can cause thiamine deficiency in rats when given orally, as measured by whole blood transketolase activity. The addition of thiamine pyrophosphate (TPP) to hemolyzed blood of deficient animals resulted in a significant enhancement in transketolase activity and the effect progressively increased as the deficiency became more severe. The degree of stimulation of TPP added in vitro was not observed in the hemolysates of control animals. The result of this study indicates that thiaminase in fermented fish, which was found to be similar to that extracted from raw clam, can also cause thiamine deficiency. As indicated earlier, Thai people living in the northern and northeastern parts of the country consume a large amount (50 g) of raw fermented fish in their daily diet. This amount of fermented fish is equivalent to 225 units of enzyme per day. A repeated consumption of this food material throughout their lives could certainly lead to a state of thiamine deficiency.

The method used in this study, that is, the microassay of whole blood transketolase activity developed by Dreyfus (10) should prove to be valuable in nutritional studies among infants and children and in the assessment of marginal thiamine deficiency status. In the past such studies in infants and children were
limited by a large amount of blood required for the assay. From our studies, the biochemical defect at transketolase level in the experimental animals was demonstrated even before growth rate was altered. Since only 30 microliters of whole blood is required for the assay, this can be easily assessed by a fingertip of infants and children.
BIOGRAPHY

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