

Development of Method for Determination of Lead, Iodine, and Protein Content in Fish Sauce

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ABSTRACT

The aim of this investigation was to develop a method for the determination of the lead, iodine, and protein content in fish sauce. For statistical data, five samples of fish sauce that cost 9.0–43.0 Bahts were randomly bought from a supermarket in Chiang Mai Province. Five replicates of each sample were digested and measured for the lead amount, using absorbance by atomic absorption spectroscopy, and each replication was injected six times. The iodine content were measured from the five samples, and each sample was investigated in five replications using the iodimetric method. The protein contents was determined by applying the Kjeldahl method using the five samples. The lead determination method was accepted because of the statistical data. Using fish sauce as a seasoning agent is a practice that is safe from lead toxicity because the lead contents were found to be lower than the stipulated Thai Food Act Limit which is 1.0 ppm. The determination method for iodine content needs to be further developed by controlling the pH of the reaction medium to be neutral or to be that of a dilute acid. The protein determination method needs to be investigated for more statistical data. Consumers should also pay better attention to the sample label because it was observed in this investigation that there was a highly priced sample contained low nutritional values of protein besides showing the wrong label.

Keywords: fish sauce, lead, iodine, protein

INTRODUCTION

The principal source of lead (Pb) contamination for humans is food, from both plants and animals, which are received in the following ranges: from 220 to 400 µg/day for adults and from 75 to 120 µg/day for small children.

The absorption of ingested inorganic Pb is about 10%, whereas that of organolead compounds (tetraalkyl Pb in gasoline) may be up to 75%, with less than 5% of the absorbed Pb retained (Hayes, 1988). In children, both absorption