

3936148 NUFN/M : MAJOR: FOOD AND NUTRITION FOR DEVELOPMENT; M.Sc.
(FOOD AND NUTRITION FOR DEVELOPMENT)

KEY WORDS : SALT IODIZATION/ IODINE CONTENT/ HOMOGENEITY

CHANTAKAN THONGPLAW: SALT IODIZATION IN THAILAND AND FACTORS AFFECTING QUALITY OF IODIZED SALT. THESIS ADVISORS : PATTANEE WINICHAGOON, Ph.D., VISITH CHAVASIT, Ph.D., NIPA ROJROONGWASINKUL, M.Sc., SOMSRI CHAROENKIATKUL, D.Sc. 180 P. ISBN 974-662-330-3.

Universal salt iodization has been promoted to be the major strategy for solving Iodine Deficiency Disorders (IDD). In Thailand, based on average daily consumption of salt, FDA notification #153 specifies that iodized salt must contain no less than 30 ppm of iodine. Several iodization techniques are used in Thailand. Quality assurance of iodized salt at production site is important to increase the likelihood to use iodized salt for eradication of IDD. A cross-sectional study was conducted by visiting 53 producers of iodized salt in 15 provinces during August 1997 and March 1998. The study aimed to determine iodine content, homogeneity of iodized salt and factors affecting quality of iodized salt. Test kits being used in Thailand were also evaluated.

The results showed that 80% of the producers were small scale, having the capacity of <100 tons/mo. Batch process was used by 90% of small scale producers, 50% of which used manual methods (mixing in trough, plastic basin or salt pile on the floor). Moisture content and particle size had no effect on iodine content by most methods. The iodine to salt ratio was found to be significantly related to iodine content in three batch processes (MOPH and Chiangmai models and mixing in trough, $p < 0.05$). For all iodization process, errors in preparation of iodine solution and ratio of iodine to salt could affect iodine content. Other factors, including iodine spraying pattern and supervision during iodization process added to the quality. The median iodine contents were found to be >50 ppm for all methods, with 20% of samples from several methods containing >100 ppm iodine. There was a wide variation in iodine content as measured by %CV. Proper mixing was important to ensure homogeneity. Most of the machines used in the continuous process had built-in mixing component. However, only the large scale factory and those that used plastic basin showed the best homogeneity (low %CV) for continuous and batch processes, respectively. The agreement between I-kit read by technician and titration was moderate ($K=0.559$), but that between I-kit read by producers and titration was very low. The agreement of MBI kit read by technician and titration was very low ($K=0.068$).