Salt iodization in Bangladesh — problems and a suggestion

Sir — Iodine deficiency disorders are a major health problem in Bangladesh. The most recent survey (1997) showed that 41.7% of the population had symptoms of goitre, 0.5% had congenital hypothyroidism and 68.9% had biochemical iodine deficiency (I). Designed to control iodine deficiency, the Bangladesh Universal Salt Iodination Act No. 10 came into effect in 1989 (2). It included the provision that the Bangladesh Council of Scientific and Industrial Research (BCSIR) and other institutions should be responsible for monitoring the quality of the iodized salt manufactured and sold from that time onwards. However, to our knowledge no reliable testing system has been systematically used as part of this compulsory monitoring procedure, and the BCSIR has not been officially involved. This is not surprising since quality control regulations are seldom strictly enforced in Bangladesh even in the case of drugs and other medical supplies.

For more than two decades the Government has been working with UNICEF to eradicate iodine deficiency disorders. After the Act of 1989 came into force the salt iodization programme was taken up energetically. Most of the salt crushing units (which produce pure white sea salt from the impure coloured products of the salt croppers) have been provided with iodization equipment, and UNICEF supplies the iodizing agent, potassium iodate, free of charge. Despite these efforts the product is not good and the iodization programme is making no measurable impact.

In 1995 we published the results of the first national study on the quality of iodized salt produced within the country (3). These showed that only 30% of the iodized salt manufactured in Bangladesh contained an acceptable level of iodine. Surprisingly, 10% of the commercial brands contained no iodine at all. Other findings suggested that most manufacturers may be fortifying salt with an iodine solution made with ethyl alcohol, rectified spirit or denatured alcohol. Only 30% were using the recommended iodate, 10% were using mixtures of fortifying agents, and 10% were not using any iodine at all.

The 1997 survey (I), conducted with UNICEF support, showed that the situation had not improved. In particular, it indicated the following:

- only 57% of the salt factories with iodization facilities were in regular production, 7% produced iodized salt only irregularly, and 36% were closed;
- of the 379 samples collected from 138 factories, only 5% contained adequate amounts of iodine, 46% contained too little, 1% contained none at all, 49% contained too much; and, alarmingly, 17% of the factories were producing iodized salt containing more than 20 times the recommended amount of iodine;
- of the 1104 samples collected from retail outlets, 7% contained no iodine, only one contained the recommended amount; 44% contained too little and 56% contained a very large excess.

These data show that the salt iodization programme in Bangladesh is not making headway. As far as we have been able to ascertain, the main reasons for this sad state of affairs are the following: lack of quality control measures in the production units, lack of skill in the production personnel, and failure on the part of the government agencies concerned to take appropriate measures to ensure the legally required quality of iodized salt.

Attempts to draw attention to this problem in order to solve it have so far failed. A promising alternative is being pursued in India, where a new scheme for large-scale monitoring of the quality of iodized salt has been started jointly by the International Council for the Control of Iodine Deficiency Disorders and 60 national nongovernmental organizations to measure the iodine content in iodized salt by titration (4). A novel step involves providing schoolchildren in Delhi with detection kits to monitor the quality of iodized salt. By this means 5474 samples were analysed, of which 5449 (99.5%) contained iodine. Of the 1712 samples tested in a laboratory, 1651 (96.4%) had adequate iodine content (≥15 ppm), 53 (3.1%) had between 1 and 15 ppm of iodine, and 8 (0.5%) had none.

Acting independently and encouraged by India’s example, I have developed facilities in my laboratory at the university for free testing of salt for iodine content, and invited the public to use them. I am also working with the youth welfare group ANANDO to set up monitoring units at its headquarters in Dhaka and at its regional centres in district towns, offering facilities for the free testing of iodized salt. We are suggesting to the Government and to nongovernmental organizations working in Bangladesh that they should replicate the Indian model and our own in the interests of public health.

S.S.M.A. Khorasani
Professor and founding Chairman
Department of Applied Chemistry and Chemical Technology
Dhaka University
Dhaka 100
Bangladesh

References