

Kyoto Protocol and the deep seabed regime of UNCLOS III

The 2 December 2003 refusal by Russia to ratify the 1997 Kyoto Protocol and a similar stand adopted by the US since March 2001 compare with the non-ratification of UNCLOS III (Third United Nations Convention on the Law of the Sea) by the US and other industrialized countries in protest against its provisions on the deep seabed regime. The multilateral treaties like UNCLOS and Kyoto Protocol are consensus-driven agreements to address the current and future concerns, and adopt a regulatory framework for improvements in their respective jurisdiction. The non-ratification of the Protocol by the US, Russia and Australia will weaken the attempts at implementation resulting in delays and uncertainty of such treaties. While the European Union and Japan are backing the Kyoto Protocol, the UNCLOS suffered for lack of support from the industrialized countries with deep seabed mining interests, particularly the US, UK, Germany, Japan, Russia, France, Italy and the Netherlands, until the implementation agreement of 1994 intervened

to restore the confidence of these countries in the deep seabed mining component of the treaty. The UNCLOS has since come into being from 16 November 1994, with major industrialized countries accepting the changes, while the US has publicly stated its intention on becoming a state party as soon as possible. India ratified UNCLOS on 29 June 1995.

The Kyoto Protocol, an environment agreement, requires industrialized countries to scale back emissions of carbon dioxide and other greenhouse gases by an average of 5% from their 1990 levels by 2012. The US has, in March 2001, decided to abandon the treaty and draw up its own action plan¹. The US and Russia are the first and fourth of the world's largest emitters of heat-trapping greenhouse gases. In the absence of the US, the only way to reach a threshold for enactment under the protocol's terms is with Russian participation².

All the 165 participating countries had, in a meeting in Morocco during early November 2001, smoothed over differences

and approved the full set of rules to enforce the protocol. Among the participant countries were smallest islands to the biggest states, except the US. The non-ratification is sometimes used as a negotiating ploy to extract concessions and make self-serving interests dominate the outcome of unacceptable components of the treaty. The Kyoto Protocol, like UNCLOS, must find acceptance with major polluters and thus provide a cleaner environment and motivation for others to follow beyond 2012.

1. AP report, *The Hindu*, 11 November 2001.
2. Revkin Andrew, C., *The Hindu*, 5 December 2003.

B. VIJAY KUMAR

*Geological Oceanography Division,
National Institute of Oceanography,
Dona Paula,
Goa 403 004, India
e-mail: bvkumar@darya.nio.org*

Antioxidants

In response to my correspondence on the adverse effects of antioxidants¹, Tiwari² has resented my not appreciating their beneficial effects, though I made no conscious attempt to disparage the benefits we can obtain from them. My own article, published earlier (cited in ref. 2 of my bibliography) elaborates cardioprotective effects found in them. However, the message delivered in my letter¹ (which Tiwari has chosen to ignore) is too important to wink at. There is ample evidence in the literature to suggest that random intake of some antioxidants (specially vitamin A, E and *b*-carotene) with the hope of preventing various ailments, is not advisable. Recently, in order to assess the efficacy of antioxidants to prevent cardiovascular diseases, some meta-analyses were performed on seven randomized trials of vitamin-E treatment and eight trials of *b*-carotene treatment. These trials were

conducted earlier involving a large number of subjects from different parts of the US, Canada, Europe and Australia. The meta-analysis did not show any beneficial effect of vitamin E and a small, but significant increase in mortality was observed in the *b*-carotene group compared to the control. On the basis of these results, the analysts suggested that the use of supplements containing *b*-carotene and vitamin A should be discouraged. They also did not support continued use of vitamin-E treatment and recommended discontinuation of clinical studies involving *b*-carotene³. A recent report reveals an association between a diet rich in fruits and vegetables and a 25% reduction in the incidence of lung cancer, but no protective effect associated with supplements containing vitamin A, C, E and *b*-carotene⁴. On the contrary, two major randomized intervention studies showed that

b-carotene supplementation was associated with increased mortality due to lung cancer⁴.

Notwithstanding the beneficial effects of antioxidants, reported from time to time, the problems associated with their use remain unknown by and large to the common people. When taken in excessive amounts, some antioxidants are found to have adverse effects. Under some circumstances, they may even behave as pro-oxidants. The amount of antioxidants in plant products varies depending on various factors (e.g. type of plants, environmental condition). Efficacy of an antioxidant also depends on several factors like the particular form of an antioxidant used (e.g. *a* and *g*-tocopherol) and genetic make-up of a person⁵. Moreover, many people take antioxidants on self-prescription while continuing the conventional therapy. It has been known that the antioxidants may