Vitamin C

Pauling backs wonder cures

Washington

CARRYING his crusade for vitamin C to the courtroom, Dr Linus Pauling appeared at a hearing on 11 May in San Francisco to defend a mail-order vitamin dealer charged with making false claims for his products.

The defendant, Oscar Falconi, has been selling vitamin C and other products under the name of the "Wholesale Nutrition Club", which does business out of two post-office boxes in California. His promotional literature includes such claims for vitamin C as "probably offers 100 per cent protection against bladder cancer", "cures (and prevents) urinary tract infections" and "prevents SIDS (sudden infant death syndrome)".

Falconi has also been offering a "Drug Rehabilitation Kit" consisting of three pounds of vitamin C powder and 265 multivitamin capsules together with instructions which assert that a regimen of the vitamins "allows you to kick alcohol, nicotine, caffeine, and Valium" as well as narcotics and other hard drugs. "If ever an addict is unconscious, and at death's door due to a drug overdose", the instructions add, "you must immediately find a doctor to slowly inject 30 to 40 grammes of our pure sodium ascorbate into the vein of the addict. If this is done in time, the addict will be out of trouble in minutes."

Pauling, who testified that "chronic subclinical scurvy" was widespread in the human population, appeared willing to defend even the most extreme of Falconi's claims. He cited Dr Ewan Cameron's disputed studies of cancer patients as evidence not only of vitamin C's effectiveness against cancer but also of its usefulness in curing drug addicts: cancer patients who were given 10 grammes of vitamin C per day, he said, stopped asking for morphine for their pain and suffered no withdrawal symptoms. Pauling also said that vitamin C has antibacterial and antiviral properties and acts synergistically with antibiotics.

Joining Pauling as a defence witness was Irwin Stone, a retired brewing chemist (who when questioned about his credentials made several references to his honorary doctoral degrees from the Los Angeles College of Chiropractice and Donsbach University, a mail-order outfit; he in fact has no formal degree) whom Pauling credits for sparking his interest in vitamin C and health in 1966. Stone testified that "all clinical diseases have as their cause a lack of vitamin C".

The Postal Service, which brought the charges against Falconi under a statute prohibiting the use of the mail to obtain money by false representation, is seeking an administrative order to seize Falconi's incoming business mail. The Postal Service cited four specific products which it said Falconi misrepresented: the "Drug Rehabilitation Kit"; a vitamin-C test paper whose promotional literature included the exaggerated claims about vitamin C's benefits; the food preservative BBT, which Falconi represents as a treatment for genital herpes; and a mixture of glycine and vitamin C for "detoxifying" coffee.

Dr Wallace Sampson of Stanford University and Dr Thomas Jukes of the University of California at Berkeley, both frequent critics of medical quackery, testified for the Postal Service.

According to Sandra McFeeley, who presented the Postal Service's case, Falconi has already agreed to the impounding of orders for the four disputed products while a decision is pending in the case; he has also agreed to refunds to those who ordered the products. McFeeley said the Postal Service is not seeking to put Falconi out of business nor accusing him of fraud, but only attempting to halt the misrepresentations. Falconi is, however, facing criminal charges of false advertising in the California courts.

A decision in the Postal Service's case is expected in three months.

Stephen Budiansky

Radioactive waste

US academy sets guidelines

Washington

THE search for a permanent underground repository for disposing of nuclear waste inched sluggishly forward last week with the publication of a major report by the National Academy of Sciences confirming that the technology is feasible and ready for testing. But the report — the first in which the academy has examined the overall waste disposal system — criticizes the way the Environmental Protection Agency (EPA) has tried to set safety criteria for a repository.

Under last year's Nuclear Waste Policy Act, the Department of Energy has until 1987 to choose a site for the first US repository, with tests using radioactive materials scheduled for 1990. The search has become increasingly urgent as a number of states have frozen the construction of nuclear power plants until an adequate national system for disposing of radioactive waste has been devised and is ready for use. The Department of Energy has started looking at nine sites in six states which may be suitable for a first geological repository.

The federal government has not yet set a "performance criterion" — an upper limit on radioactive leakage from such a repository. But the academy's report, prepared under the direction of Professor Thomas Pigford of the University of California, says EPA has approached the problem in the wrong way. Early performance criterion studies by EPA have examined the probable radiation dose to a total population within a 10,000-year period. The academy says a population-based calculation is neither useful nor meaningful, and proposes instead an upper limit on the lifetime dose to a maximally-exposed individual.

In addition, the report argues against using a 10,000-year cut-off because only a "small fraction" of the radionuclides ultimately reaching the environment from a repository is expected to have been released during that time. The academy calculates future radiation dosages for as long as potentially important doses are predicted to occur. For the purposes of its own study, the academy selects 10^{-4} sieverts per year as the maximum acceptable average lifetime dose rate.

According to the academy, the first loadings of waste in the first repository, which should be completed before the end of the century, will be the products of spent fuel and defence waste that have been in storage for 30 years or more. The age of the material means that the heat generated by its decay will cause few problems, but newer waste added later will generate much higher temperatures and place greater stress on the packaging material. The report calls for new tests on the performance of borosilicate glass at high temperatures.

The academy's report discusses the merits of the various proposed sites, but makes no recommendations about which are most suitable. It says adequate sites are "probably" available in volcanic tuff but that they can be "most easily identified" in thick bedded salt deposits.

The Department of Energy has been holding public hearings at all the sites selected for study, and in most cases has encountered vigorous local opposition. At a hearing in Hereford, Texas, last week, department officials were told by angry residents that they refuse to accept "this nuclear trash".

Peter David

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