This Week's Citation Classic

CC/NUMBER 33
AUGUST 17, 1981

Beare-Rogers J L, Nera E A & Heggtveit H A. Cardiac lipid changes in rats fed oils containing long-chain fatty acids. *Can. Inst. Food Technol. J.* **4**:120-4, 1971. [Research Labs., Food and Drug Directorate, Dept. National Health and Welfare, Ottawa, Ontario, Canada]

Fat accumulated in the heart muscle of young rats fed oils high in docosenoic acids (erucic acid and its isomers). The amount of the long-chain fatty acids deposited was proportional to that in the diet, and was negligible with low-erucic rapeseed oil. [The *SCI*® indicates that this paper has been cited over 90 times since 1971.]

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July 17, 1981

"This was not always a popular paper, or even an acceptable topic for publication.

"The manuscript had been submitted to a Canadian journal that published papers on physiology and nutrition, and had seemed to be lost. When I eventually contacted the editor, he told me that I would have to wait for an editorial decision. That came along with the rejected manuscript and two sets of favorable comments from reviewers.

"I was disappointed. The work had been one of several studies on the effects of feeding rapeseed oil that had been described at the 1970 International Rapeseed Congress at Ste. Adele, Quebec. By the end of 1970, some of the reports had appeared in European journals, but our paper describing the contribution of erucic acid and its isomers to the accumulated fat had still not been accepted for publication. It had become obvious, too, that although the Food and Drug Directorate wanted information on the docosenoic acids that were becoming more and more prominent in the Canadian diet, producers of rapeseed or hardened fish oils did not like the results. The rapeseed produced with great success in the prairie provinces contained at that time a high level of erucic acid.

"Remembering that the editor of another journal had been at the Ste. Adele meeting, I called him, read the letter of rejection and the reviewers' comments and asked him to consider the paper for publication. He agreed to examine all of the material, which I promptly sent to him in the next mail.

"A few months later, the article appeared in what was then called the *Canadian Institute of Food Technology Journal.* Publishing in this journal was a new experience for my coauthors, Nera and Heggtveit, both pathologists who had examined many heart sections.

"To have this paper become a *Citation Classic* was truly unexpected. There had even been complaints in the year or so after it was published about the difficulty of obtaining the journal. Also, the work described in the paper was simply a logical extension of studies on lipfdosis that had been done in the Netherlands. To some readers, the results appeared to be fatuous. Then, as interest in the field grew, more laboratories began to investigate the long-chain fatty acids. A 1977 review[1] of docosenoic acids contained 333 references. The timing of this paper must have been critical, for if it had appeared much later, it would have contained no new information. I reviewed that material and some follow-up experiments in the Bordon Award Lecture of 1972 in Quebec City. Later, the Food and Drug Regulations placed a restriction on the level of docosenoic acids that could be present in food. High-erucic rapeseed oil in the Canadian food supply has been replaced with low-erucic canola oil, and is now of only historic interest."

1. **Beare-Rogers J L.** Docosenoic acids in dietary fats. *Progr.. Chem. Fats Lipids* **15**:29-56, 1977.