

# Risk assesstment in Toxic Oil Syndrome and his epidemiological circumstances: ethic, social and technic aspects.

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## INTRODUCTION

On the 1st of May a child died in the Niño Jesús Hospital, in Madrid. He had a new disease, never seen before on the medical bibliography. A month later, his doctor ventured a cause for the disease: adulterated, unlabeled street oil, sold by itinerant vendors. Beginning that day, Spain lived the worst food-born epidemic in its entire history.

For many years, the specific etymological agent remained unknown and the animal models gave no results in simulating the disease. Even more, at the time of the epidemics little was known about the origin of the oil, nor was it certain that the epidemic was caused by the oil. An action had to be taken, but solely scarce epidemiological information was available. This project will try to review the administrative actions as well as the social and ethical consequences derived from them.

## MATERIAL AND METHODS

This bibliographical review explores the administrative, ethic and social aspects of the Toxic Oil Syndrome. Because the actions were taken on the basis of epidemiologic information, a focus is taken upon some aspects of the development of the epidemic. On the other hand, there is some interest met on the toxicological and on the clinical aspects, as a kind of introduction, to explain the initial confusion about the etiological agent and the effects of the disease on the sick.

This work is based on some international publications, mostly by the WHO (World Health's Organization). Both Toxic Oil reports (1992 and 2004) are being used as a start point for relevant essays, especially on the first parts: the clinical, chemical and epidemiological aspects.

As for the last part, less “formal” or scientific information is available, as global risk assessment is rarely taken into account as a whole. Especially when it comes to comparison, I have tried to find some kind of guide or layout to emergency management. Luckily, the WHO published on February 1981 (four months prior the outbreak) a “Planning emergency response systems for chemical accidents” (Jones 1981). On the same book there are evidences that the Spain Health Ministry knew of it.

On a general basis, I have tried to compare the actions or the attitudes taken with available guides or information available at the time. Where it was not possible, I have taken some present layouts and interpreted the past situation with them (as with the communication groups, Gervas 2009).

## DISCUSION

The response to the epidemic was very precipitated and spontaneous, although some points can be remarked:

- There was no plan, nor were there any intentions to prepare one, for an outbreak such as this or of any kind.
- Comunication between parties (government, scientist and the public) was deficient and created more confusion than it intended to reduce.
- Social issues are quickly forgotten, it seems it's victim's responsibility to keep them on the dairy political schedual.
- The Toxic Oil Syndrome served as a sort of catalisys to improve and regenerate the Spanish Public Health system, as well as to make the European Union realise that a new path for new deseases was possible: food.

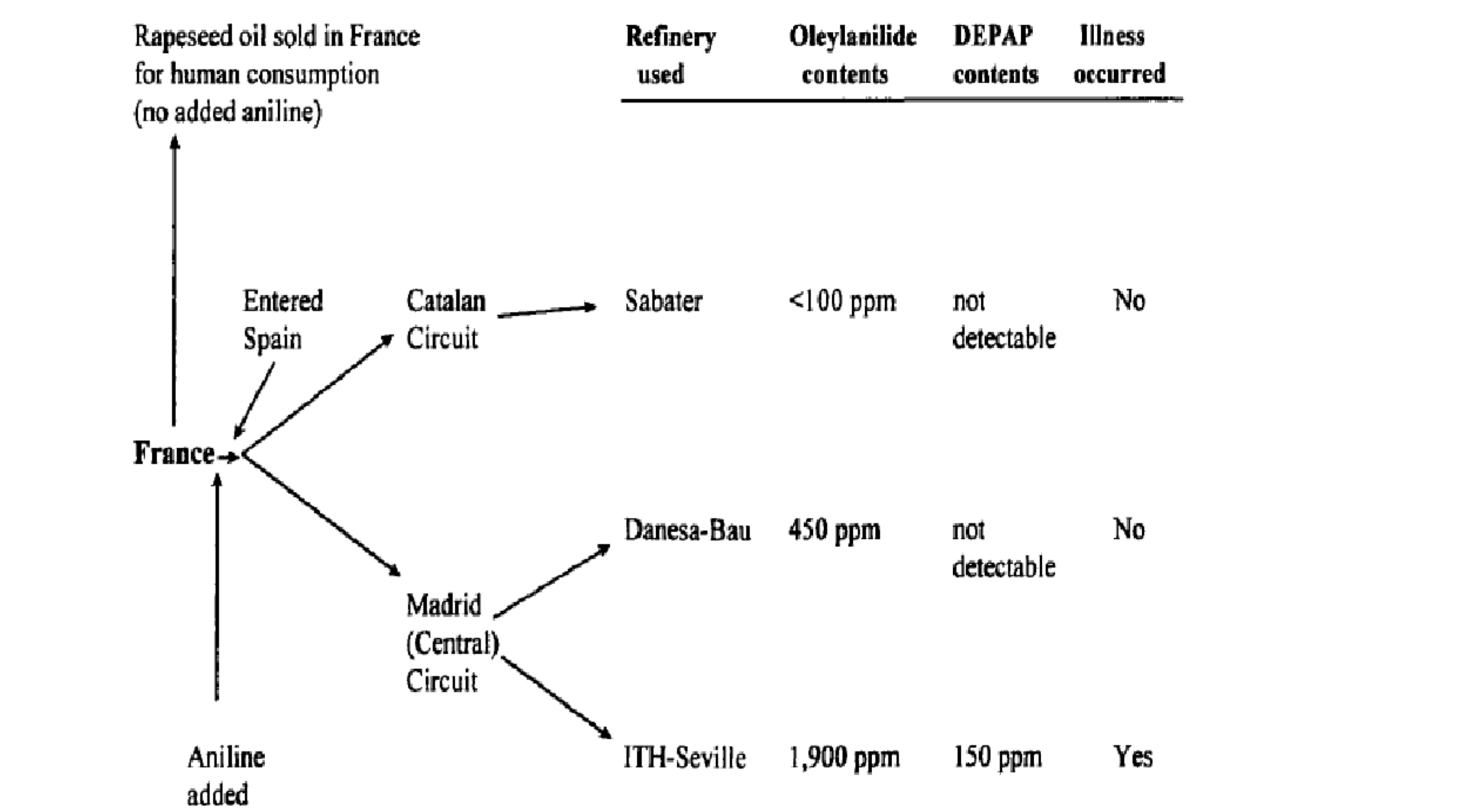
## RESULTS

-Clinical: the Toxic Oil Syndrome was a multisystemic disease, with three distinct phases: acute, intermediate and chronic, each with some common traits and some distinctive features (Phillien 1993).

Death risk was present in each of the phases.

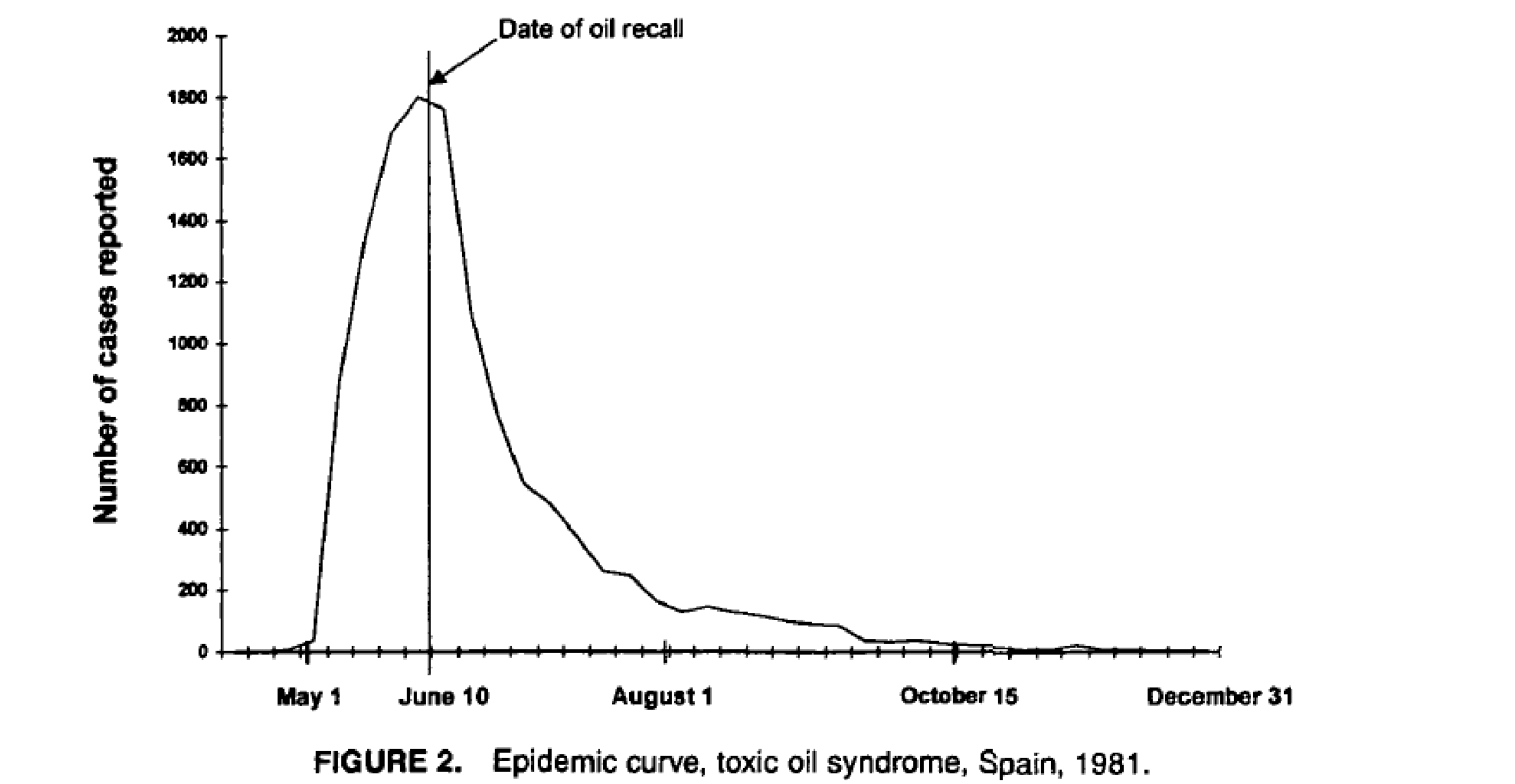
-Chemstry: despite being the first obvious hipotesis, the aniline-denaturant present in the street oil has lost its status as the main target molecule by a candidate with a much better case-dose corealtion : the 3-(N-phenylamino)-1,2-propanediol and their esters (Hill *et al.*,1995).

-Epidemiology: the oil came from France, were it was sold as edible oil. Prior entering Spain, it was denatured with 2% aniline. Here, RAECCA bought the oil by means of RAPSA, and “renatured” it on the ITH refinery in Seville (Hill *et al.*, 1995).



Details of path of denatured oils from France to Spain, toxic oil syndrome, Spain, 1981. DEPAP, 3-(N-phenylamino)-1,2-propanediol.

As early as 23 April, people became to get sick, and on 10<sup>th</sup> of June the Government made an official declaration relating the new disease with the oil consumption. The 30<sup>th</sup> of June the Goverment proceed to exchange the house-hold oil with pure olive oil, at the State expense. The situation improved quickly, although the epidemic curve started to decai some days earlier (Posada *et al.*, 2001).



**BIBLIOGRAFÍA**

- Phillien, R., Posada, M., 1993. Toxic Oil Syndrome and Eosinophilia-Myalgia Syndrome: May 8-10, 1991, World Health Organization Meeting Report. *Seminaris in Arthritis and Rheumatism*, 23: 104-124.

--Hill, R.H. Jr., Schurz, H.H., Posada de la Paz, M., Abaitua Borda, I., Philen, R. M., Kilbourne, E.M., Head, S.L., Bailey, S.L., Driskell, W.J., Barr, J.R., Needham, L.L., 1995. Possible etiologic agents for toxic oil syndrome: fatty acid esters of 3-(N phenylamino)-1,2- propanediol. *Archives of Environmental Contamination and Toxicology*, 28:259–264.

--Posada de la Paz, M., Philen, R., Abaitua Borda, I., 2001. Toxic oil syndrome: the perspective after 20 years. *Epidemiologic Reviews*, 23:231–247.