

LETTER TO THE EDITOR

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Dear Editor in Chief,

The central aim of the project is to provide, on one hand, a logic relationship between trans fatty acid (TFA) consumption and development of obesity and/ or diabetes as a result of lipotoxicity that can be caused by elaidic acid as TFA example. On the other hand, we aim to undertake a phyto-therapeutic approach that may reestablish the parameters' dysfunction.

Our study privileges male Wistar rats due to their human physiology resemblance with humans. The animals will receive increased concentrations of elaidic acid. Thus, we are interested by the assessment of several parameters that could be affected.

In literature, it was demonstrated that fatty acids act as hepatic gluconeogenesis regulators (Girard, 2003), and an excess of free fatty acids may in vivo contribute to type 2 diabetes emergence (Randle *et al.*, 1988). Thus, fatty acids intervene on the process of insulin secretion regulation by β cells as it was shown that they act as cytotoxic and apoptotic factors (Girard, 2000). Furthermore, FFA control the expression of few genes responsible of lipotoxicity appearance (Unger, 1995; Unger, 2003), and disturb the insulin signaling transmission (Shulman, 2000). Otherwise, FFA are correlated with the appearance of type 2 diabetes (McGarry, 1992; McGarry, 2002). Furthermore, Kiyotaka *et al.*, 2017 showed that the conception of food containing elaidic acid is related with the appearance of obesity and diabetes.

In the light of these bibliographic resorts, our research focuses on several biological changes or disturbances that may be caused by accumulation of elaidic acid on cells.

We attempt to administrate increased concentrations of elaidic acid to male Wistar rats aiming to reach the obesogenic and/or diabetic effect.

Several biological parameters are called to confirm the central hypothesis of this project, namely the anthropometric parameters, glycemia, isolation and purification of total lipids from liver and blood to be examined with GC/MS, lipidic profile, the oxidative status, lipase activity, and an anatomopathological study of the liver and the pancreas.

As expected, result we are considering, on the one hand, the emergence of type 2 diabetes and obesity among the investigated animals and on the other hand, a reestablishment of the physiological disorder.

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