A newly developed silymarin nanoformulation as a potential antidiabetic agent in experimental diabetes

Yousra M El-Far¹, Mahmoud M Zakaria², Mahmoud M Gabr², Amal M El Gayar¹, Ibrahim M El-Sherbiny*¹³ & Laila A Eissa¹²

*Author for correspondence: ielsherbiny@zewailcity.edu.eg

¹Both are the senior authors for the nano and bio sections, respectively

**Aim:** This study aimed to develop a new stable nanoformulation of silymarin (SM) with optimum enhanced oral bioavailability and to evaluate its effect as well as mechanism of action as a superior antidiabetic agent over native SM using streptozotocin-induced diabetic rats. **Materials and methods:** SM-loaded pluronic nanomicelles (SMnp) were prepared and fully characterized. Biochemical parameters were performed as well as histological, confocal and reverse-transcription polymerase chain reaction studies on pancreatic target tissues. **Results & conclusion:** SMnp were found to improve significantly the antihyperglycemic, antioxidant and antihyperlipidemic properties as compared with native SM. In addition, SMnp was found to be a more efficient agent over SM in the management of diabetes and its associated complications due to its superior bioavailability in vivo, and the controlled release profile of SM.