Introduction and Aims: Inflammation and oxidative stress plays a pivotal role in the development of diabetic complications. Silymarin, an herbal drug with antioxidant and anti-inflammatory properties, may improve glycemic control and prevent the progression of the complications. With this review we aimed to assess benefits and harms of silymarin versus placebo in addition to standard care in adults with type 2 diabetes mellitus.

Methods: We conducted a systematic review of randomized controlled trials.

Results: We found 5 randomized control trials (RCTs) with 270 participants included. In low-to moderate-quality evidence, routine silymarin administration determines a significant reduction in fasting blood glucose levels (-26.86 mg/dl; 95% CI -35.42 - 18.30) and HbA1c levels (-1.07; 95 % C.I. -1.73-0.40) and has no effect on lipid profile. Only one small study, with a short follow-up reported a reduction of proteinuria in patients with type 2 diabetes with overt nephropathy MD (-566;95 % C.I. (-827 to -305) mg/g in the silymarin group versus -219 (-454 to 16) mg/g for placebo). Mean values for changes in renal outcomes (serum creatine, EGF) were not significantly different between the two groups.

Conclusions: Silymarin interventions might improve glycemic control in patients with type 2 DM. Benefits for silymarin on proteinuria and CKD progressions are uncertain. However, being aware of the low quality of the available evidence and elevated heterogeneity of these studies, no recommendation can be made and further studies are needed.