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It is Time to Formulate an Antioxidant Mixture for Management of Diabetes and its Complications: Notice for Pharmaceutical Industries

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Diabetes is a prevalent disease affecting a considerable proportion of the population worldwide. The number of people with diabetes is increasing dramatically that is finally associated with major health and socio-economic problems. To manage diabetes, new chemical drugs are still introduced but their efficacy or safety is still a concern (Salari *et al.*, 2011).

Oxidative stress is the result of an imbalance between production of reactive oxygen species from sources inside or outside the body and the biological system's ability to detoxify the reactive intermediates or repair the resulting damage (Abdollahi *et al.*, 2004). In insulin dependent and independent diabetes, oxidative stress is involved by generation of oxygen free radicals due to nonenzymatic protein glycosylation, auto-oxidation of glucose and also by changing the level of antioxidant defense enzyme. Therefore, increased production of free radicals and oxidative stress is a central player in development of diabetes complication (Rahimi *et al.*, 2005). If the relationship between oxidative stress and diabetes is considered in depth, there would be no doubt that use of antioxidants from natural sources should be helpful and safe (Hasami-Ranjbar *et al.*, 2009; Ranjbar *et al.*, 2011).

In the recent years, some herbals sources have been examined in animal models of diabetes or human that indicated very positive effects. Among these natural sources that were examined, some showed promising effects that cannot be ignored. These include species of *Satureja* (Momtaz and Abdollahi, 2010; Vosough-Ghanbari *et al.*, 2010), *Urtica* (Mehri *et al.*, 2011), *Teucrium* (Hasani-Ranjbar *et al.*, 2010), Angipars (Hemmatbadi *et al.*, 2009), IMOD (Mohammadirad *et al.*, 2011) and nanoparticles of cerium (Pourkhalili *et al.*, 2011). Fortunately most of these natural antioxidants have passed safety tests and even trialed in human. If the costs of pharmacotherapy of diabetes and its complications are carefully considered and calculated in human, the socioeconomic burden would be clarified. Therefore, it is the time for pharmaceutical industries to follow up these

reports and try to expand studies about above-mentioned compounds to finally formulate a useful mixture for diabetes.

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