

## Experimental and Theoretical Studies: Biochemical Properties of Honey on Type 2 Diabetes

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**Abstract :** Honey is primarily composed of sugars: glucose and fructose. Depending honey, it's either fructose or glucose predominates. More the fructose concentration and the less the glycemic index (GI) is high. Thus, changes in the insulin response shows a decrease of the amount of insulin secreted at an increased fructose honey. Honey is also a compound that can reduce the lipid in the blood. Several studies on animals, but which remain to be checked in humans, have shown that the honey can have interesting effects when combined with other molecules: associated with Metformin (a medicine taken by diabetics), it shows the benefits and effects of diabetes preserves the tissue; associated ginger, it increases the antioxidant activity and thus avoids neurologic complications, neuropathic. Molecular modeling techniques are widely used in chemistry, biology, and the pharmaceutical industry. Most of the currently existing drugs target enzymes. Inhibition of DPP-4 is an important approach in the treatment of type 2 diabetes. We have chosen for the inhibition of DPP-4 the following molecules: Linagliptin (BI1356), Sitagliptin (Januvia), Vildagliptin, Saxagliptin, Alogliptin, and Metformin (Glucophage), that are involved in the disease management of type 2 diabetes and added to honey. For this, we used software Molecular Operating Environment. A Wistar rat study was initiated in our laboratory with a well-studied protocol; after sacrifice, according to international standards and respect for the animal This theoretical approach predicts the mode of interaction of a ligand with its target. The honey can have interesting effects when combined with other molecules, it shows the benefits and effects of honey preserves the tissue, it increases the antioxidant activity, and thus avoids neurologic complications, neuropathic or macrovascular. The organs, especially the kidneys of Wistar, shows that the parameters to renal function let us conclude that damages caused by diabetes are slightly perceptible than those observed without the addition of a high concentration of fructose honey.

**Keywords :** honey, molecular modeling, DPP4 enzyme, metformin

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