WHAT IS CLAIMED IS:

1. Use of a polysaccharide mixture and a DPP-4 inhibitor for the manufacture of a medicament for the prophylaxis and/or treatment of type II diabetes mellitus related to hyperglycemia, wherein the DPP-4 inhibitor is gliptin and the polysaccharide mixture is derived from *Ganoderma lucidum* mycelium and has a molecular weight of at least 2,500,000 and 40% (wt%) of β(1→3) glucan and β(1→6) glucan.

2. The use of claim 1, wherein the disease and/or disorder related to hyperglycemia is diabetes mellitus.

3. The use of claim 2, wherein the diabetes mellitus is type I diabetes, type II diabetes, or gestational diabetes.

4. The use of claim 1, wherein the DPP-4 inhibitor is gliptin.

5. The use of claim 5, wherein the gliptin is selected from the group consisting of sitagliptin, vildagliptin, saxagliptin, linagliptin, gemigliptin, anagliptin, teneligliptin, alogliptin, trelagliptin, dutogliptin, omarigliptin, berberine, and lupeol.

6. The use of claim 5, wherein the insulin analogue is glargine, degludec or detemir.

7. The use of claim 1, wherein the medicament is suitable for oral, intravenous, intramuscular, subcutaneous, transmucosal, or intrarectal administration.

8. The use of claim 7, wherein the medicament for oral administration is provided as tablets, pills, granules, powders, solutions, suspensions, syrups or capsules.

9. The use of claim 8, wherein the medicament is to be administered in the amount of 1 to 1,000 mg/day.

10. The use of claim 9, wherein the medicament is to be administered in the amount of 10 to 800 mg/day.