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## Biochemical efficacy of various anti-diabetic drugs on a combination of high fat diet fed and low dose of Streptozotocin treated rats as a model for type 2 diabetes

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The present study was aimed to explore the biochemical effect of Metformin, Pioglitazone and Sitagliptin as a combination therapy in diabetic male albino rats induced by feeding high-fat diet followed by intra- peritoneal injection of a single low dose of streptozotocin (25 mg/kgb.w) to investigate the glycemic condition, lipids profile, hormones and safety of drugs on different tissues. Ninety male albino rats were included in this study, from which 15 were randomly selected as the normal control group (group A) and the remaining 75 were considered as T2DM model group. Group A was fed with commercial balanced diets and the T2DM model group, with high fat diets. After 6-week feeding, the T2DM was injected i.p. with low dose of streptozotocin (STZ) (25 mg kg-1) then randomly allocated into four groups according to the drug treatment, Diabetic (group B), Janumet (group C), Janumet plus Pioglitazone (group D), and Metformin plus Pioglitazone group (group E). the obtained results revealed that Diabetic rats showing highly significant increase in plasma glucose level, HbA1C, insulin resistance (IR) with hyperinsulinemia as well as hyperglucagonemia, Total cholesterol (TC), Triacylglycerol (TG), Low-density lipoproteins (LDLC), and Thyroid stimulating hormone (TSH), while high-density lipoprotein-cholesterol (HDL-C) and Amylase significant decrease. On the other hand, body weight was showed a different behavioral pattern, where it was detectably significant decrease in the end of experiment. Treatment with combination of Metformin, pioglitazone and Sitagliptin improved glucose hemostasis, lipid profile, and insulin resistance beside their safety on kidney, liver, Pancreas and thyroid tissues.

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## Spectrophotometric method for determination of phenylephrine-HCl in pharmaceutical dosage forms

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This study represents a new simple spectrophotometric method for determination of phenylephrine hydrochloride (PHE-HCl) based on formation of ion-pair associates between drug and inorganic complex, bismuth (III) tetraiodide in pure form and tablet formulations. The reaction occurs in acidic medium to form orange- red ion-pair associates which are instantaneously precipitated. The formed precipitate then filtered off and the residual unreacted metal complex in the filtrate was determined spectrophotometrically at 455 nm. Beer's law was valid over the concentration range of 5.0-60 µg/ml PHE. The proposed method was successfully applied to determine PHE in its tablet formulations without any evidence for interference from pharmaceutical additives. The results were in good agreement with those obtained by the reference method.

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