Effect OF Aspartame On Different Organs In Albino Rats And Comparing it With Some Other of Sugar Substitutes

Thesis

Submitted for the fulfillment of the requirements of the

M.D. Degree in Forensic Medicine & Clinical Toxicology

Presented By

Heba Hussein Abd El Fatah

Assistant lecturer in Forensic Medicine and Clinical Toxicology Department

Faculty of Medicine – Fayoum University

Faculty of Medicine
fayoum university
2015

Effect OF Aspartame On Different Organs In Albino Rats And Comparing it With Some Other of Sugar Substitutes

Thesis

Submitted for the fulfillment of the requirements of the
M.D. Degree in Forensic Medicine & Clinical Toxicology

Presented By

Heba Hussein Abd El Fatah
Assistant lecturer in Forensic Medicine and Clinical Toxicology Department
Faculty of Medicine – Fayoum University

Supervised by:

Dr. Ghada Moustafa El Galad

Head and Professor of Forensic Medicine &Clinical Toxicology department
Faculty of Medicine – Fayoum University

Dr. Heba Mohamad Tawfik

Professor of Pathology department
Faculty of Medicine – Minia University

Dr.Wael Farouk Saddeik

Lecturer of Biochemisty department
Faculty of Medicine – Minia University

Faculty of Medicine
fayoum university
2015

Abstract

Sugar Substitutes is a food additive that duplicates the effect of sugar in taste, usually with less food energy. Some sugar substitutes are natural and some are synthetic .Natural sugar substitute as herbs (stevia), agave nectar,date sugar and fruit juice concentrate .Artificial sweeteners including aspartame, sucralose, acesulfame potassium and saccharin. They are used to assist in weight loss, dental care, reactive hypoglycemia, diabetes mellitus. artificial sweeteners maycause a variety of health problems, including cancer , hypoglycemia, orhyperinsulinemia and increased food intake the next time there is a meal(obsity).Natural sweeteners are generally safe, but they can lead to health problems such as tooth decay, poor nutrition, weight gain and increased triglycerides. Honey can contain small amounts of bacterial spores that can produce botulism toxin. Aspartame is an artificial, non-saccharide sweetener . Aspartame is also one of the main sugar substitutes FDA has set its ADI for aspartame at 50 mg/kg. Residual components of aspartame arePhenylalanine ,aspartate and methanol Sucralose is an artificial sweetener, manufactured by introducing chemical modification in the sucrose molecule. ADI for sucralose for children and adults at 5 mg/kg body weight Stevia is a natural sugar substitute made from the leaves of the plant species Stevia rebaudiana. ADI is 4 mg/kg body weight. Then stevioside is broken down into glucose and steviol This study revealed that administration of aspartame induced reduction in hemoglobin, RBCs count and hematocrit in all doses ,significant reduction in WBCs count, hepatic cellular changes, elevation in blood glucose level , renal cellular changes, hyalinization in the lumen of some seminiferous tubules in testis.Sucralose induced induced reduction in hemoglobin, RBCs count and hematocrit in high dose(5.625 mg/kg with nonsignificant reduction in WBCs count, Sucralose induced significant increase in ALT and AST activities and elevation in blood glucose level only in high dose(5.625 mg/kg) with no hepatic cellular changes also significant increase in urea and creatinine level onlyin

high dose(5.625 mg/kg) with no renal cellular change. Stevia is generally save.