National University Of Science and Technology

Faculty of Applied Sciences
Department of Applied Chemistry

Project Title: To investigate the possibility of replacing alcohol, sugar and tartrazine in Paracetamol syrup and develop a new product line suitable for juvenile diabetics.

A Dissertation submitted in partial fulfilment of the Bachelor's Degree in Applied Sciences (Honours)

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ABSTRACT

The product developed was Paracetamol syrup which was free from alcohol, sugar in the form of sucrose and tartrazine. These substances were eliminated as a result of the negative pharmacological effects they cause. Paracetamol syrups are generally used by children and the elderly, to combat pain and fever. Paracetamol is not recommended for patients suffering from disorders of the liver and/or the kidney. The formulations made are also not suitable for phenylketonuric patients as the preparations contain aspartame.

This project was unique, since a new artificial sweetener - aspartame (which supplanted sucrose) was tested for it's use in pharmaceuticals. Aspartame is well known for it's use in the food and beverage industries. Aspartame is one such artificial sweetener which is not carcinogenic. It however looses it's sweetness at temperatures above 70°C and at pH values greater than 5,6. But when used within acceptable limits, it is quite stable. Alcohol was replaced by a cosolvent system constituting propylene glycol and glycerol. Tartrazine was substituted for by a red dye known as Dye allura red supra 16035, which does not produce any form of allergy and is not carcinogenic.

The successful formulation of syrups requires a blend of scientific acuity and pharmaceutical art.

Once made, the formulations were analysed for their paracetamol content. Two methods of analysis of the drug were tried. One was the Ultraviolet-Visible (UV-VIS) spectroscopic method and the other was the High Performance Liquid Chromatographic (HPLC) method. The HPLC method was found to be a more suitable method of analysis than the UV-VIS method, due to minimal interference. pH, viscosity and specific gravity were other tests carried out on the formulations. The stability was tested for a period of three months. The stability of the formulations gave the results 22,96mg/ml for trial sample 1 and 23,18mg/ml for trial sample 2. These results fall in the range 21,60 to 26,40mg/ml prescribed by the United States Pharmacopoeia. This gives confidence in the present formulations. Thus, the formulations has an appropriate shelf-life of two years.