

EXTRACTION, CRYSTALLIZATION, PRESERVATION, PELLETIZING AND QUANTIFICATION OF HYDROXY CITRIC ACID FROM *GARCINIA CAMBOGIA*

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Abstract— Hydroxycitric acid (HCA), both free acid and lactone forms is present in the fruit rind, of *Garcinia* species and it is known to help to prevent obesity. HCA is isolated from dehydrated *Garcinia cambogia* fruit rind at 60°C, by the defined most efficient extraction method of refluxing for 5 hours in soxhelt apparatus using 99% ethanol at 60°C. acid base titration with 0.5M KOH_(eth) determined The total acid content of the extracted solutions was 0.50 – 0.51g g per 1 g. most stabilized precipitate of the salt of HCA was formed with 0.05M ethanolic KOH and it was able to crystallized into a dry form by drying in a rotary vacuum evaporator, below 40°C. The formed dry precipitate was further preserved by incorporating anti caking agent at the ratio of 1:3 (vacuum dried potassium salt of HCA: corn starch). The amount of HCA in the isolated precipitate and the extract was analyzed by HPLC and UV-Visible Spectroscopy and obtained graph was compared with standard potassium salt of HCA. The λ max was obtained at 208 nm when the solution of isolated HCA was scanned between 200 – 400 nm. Content of HCA present in the plant extract has been found to be in the range of 42 - 44% by using HPLC with 0.01M hydrochloric acid as mobile phase with a flow rate of 0.5ml/min using UV detection at 208 nm. Retention time of HCA was observed at 4.535 min in selected mobile phase. Pellets were obtained by mixing aqua edible gum solution with the preserved powder of HCA salt in 1: 4 ratio and drying at 60°C for 12 hours after molding in to pellet shape.

Index Terms— *Garcinia cambogia*, High Performance Liquid Chromatography (HPLC), Hydroxy citric acid (HCA), Potassium hydroxide (KOH), Ultra Violet (UV)

I. INTRODUCTION

Acid hydroxycitric (HCA) is a major component in the fruit rind, of *Garcinia cambogia*, which grown quite popular in Southeast Asia, to use as spice for cooking. The plant contains various chemical constituents such as Xanthenes, Benzophenones and plant acids like Hydroxy Citric Acid, Maleic acid, Citric acid. [8] Hydroxycitric acid is used for weight reduction, particularly for overweight people. The acid is known to be soluble in water and alcohol and the free acid is unstable and is converted to its more stable lactone form. For consumer products, the free acid is often stabilized by forming salts of hydroxycitric acid [6]. Traditionally its dried fruits are used as anti obesity agent to reduce the cholesterol level, prevent the fat accumulation and improve the blood lipid level by boosting the excessive glucose metabolism in the body into lipid. The novel researches have discovered that the Hydroxycitric acid in the fruit is the active compound act on increases glycogenesis, gluconeogenesis, fat oxidation, [2] suppresses the fatty acid synthesis, food intake, and induced weight loss. (1)

Effectiveness of the HCA in weight lost has been studied as invitro and invivo on human. The dosages of *G. cambogia* extract in clinical trials ranged from 1,500 to 4,667 mg/day (25 to 78 mg/kg/day). The equivalent hydroxycitric acid (HCA) dose in the trials ranged from 900 to 2,800 mg/day (15 to 47 mg/kg/day). Significant effectiveness was observed among these studies when 2800mg dosage was administrated. Decrease in Body weight and BMI (5-6%), Food intake, total cholesterol, low-density