UNIVERSITI TEKNOLOGI MARA

THE CHROMATOGRAPHIC STUDY OF THE ACETONE EXTRACT OF *FAGOPYRUM*

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ABSTRACT

Two samples of *Fagopyrum* species which are *Fagopyrum esculentum Moench* (common buckwheat) and *Fagopyrum tataricum L. Gaertn* (tartary buckwheat) were studied for their botanical and phytochemical aspects. In this research, the botanical aspect of *Fagopyrum* was introduced while the phytochemical aspect was investigated by thin layer chromatography (TLC), in order to detect the chemical constituents present in the seed extracts. The methodology included the isolation, purification and identification of its phytochemical constituents. The purification of the acetone extract was done by using analytical TLC and preparative TLC. The compounds of interest were subjected to nuclear magnetic resonance (NMR) to identify their structure. The phytochemical that was successfully purified was identified as a fatty acid derivative. In addition, this result was supported by the literature that mentioned the isolation of unsaturated fatty acids, such as oleic (18:1), linoleic (18:2) and linolenic (18:3) acids. Linoleic acid was reported as the major polyunsaturated fatty acid of the buckwheat lipid. In conclusion, the Proton NMR (^{1}H-NMR) spectroscopy also provided useful data for analyzing fatty acid composition since the quantitation of each fatty acid signal was carried out by evaluating the particular peaks.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Fagopyrum species (buckwheat) is a highly nourishing crop with significant influence on health and human diet. Buckwheat has multilateral use especially in food industry, feedstuff, as well as pharmaceutical industry and cosmetics. Buckwheat enjoys a permanent increase of attractiveness as a research subject since this crop is relatively unexplored. The crop still hides big medicinal potential and opportunities to extract valuable biogenic natural compound. Buckwheat is an old crop since it was used for many centuries as staple food, medicinal herbs or feed in many countries until the development and industrialization of agriculture buried this crop and left all its qualities, advantages and potential behind in race towards the highest volume production (Pokhlyobkin, 2001).

Although in European region, buckwheat is an underutilized crop, it has many advantages for both the grower and consumer since it hides big medicinal potential and opportunities to be extracted with valuable biogenic natural compound. The crop is not cereal but the seeds are usually classified among cereal grains because of their similar usage (Sharma & Jana, 2002). Buckwheat is a multipurpose crop as its small leaves and shoots are used as leafy vegetables, the flowers and green leaves are used for rutin extraction for medicinal purpose. The crop also produces honey of very good quality from the flowers (Michalova, 1998).