APPLICATION OF ULTRASOUND THERMAL PROCESS ON EXTRACTING FLAVOR AND CAFFEINE OF COFFEE

by

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In this research, our focus is the use of ultrasound thermal process to extract flavor and caffeine from coffee. The different operating conditions for extraction experiments are executed and the results are also compared. The results show that coffee flavor is not enhanced with the increase of temperature because the volatile degree of coffee flavor components is quick and easy to be reached at high temperatures. From the experimental results, it can be found that using low vibration frequency is better than using high vibration frequency. Also, caffeine will be reached into the saturated state at the 15th second of the extracting time and the quantity of caffeine augments with the increase of temperature.

Key words: ultrasound, caffeine, flavor

Introduction

Coffee is an extremely popular leisure drink throughout the world. It has a kind of very distinct aroma that is the result of a variety of constituents which include proteins, tannic acid, fats and of course caffeine and so on. A general survey of reference works indicates that ingesting a small amount of caffeine can be beneficial; it can stimulate the brain and enhance memory. If being ingested in excess, on the other hand, caffeine can exacerbate health issues such as heart problems, high blood pressure, kidney and coronary diseases.

The ingredients of coffee include caffeine, aroma, proteins, tannic acid fats, etc. When used in moderation, caffeine can stimulate the brain, enhance memory, inspire enthusiasm, clarify thoughts, and reduce fatigue and sleepiness. However, excessive amounts of caffeine can cause anxiety, uneasiness, heart palpitations, headaches, diarrhea and insomnia among other negative effects. Some literature indicates that caffeine can have a detrimental effect on human health. These negative effects include exacerbating coronary artery disease, raising blood pressure, and heightening the risk of heart attack and kidney disease [1, 2].

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