

STRESZCZENIE PRACY W JĘZYKU ANGIELSKIM

Name and surname of the author of the dissertation: Kaja Katarzyna Karwowska, BEng, MSc
Name and surname of the dissertation promoter: Maria Śmiechowska, BAgrSc, PhD, DSc, ProfTit, Professor

The subject of the doctoral dissertation:

"Innovative methods for determining the quality and assessing the authenticity of Pu-erh teas".

The history of Pu-erh tea goes back several thousand years but its world career began several decades ago, and the Polish consumer has known it much less. The original Pu-erh has been manufactured for centuries in a few Chinese provinces in which it is known as Raw Pu-erh. On the global market, Pu-erh tea is available in three types: Raw, Vintage Raw and Ripe. Most Polish consumers do not know what type of tea is available in shops, because packages are not labeled with such an information.

It is not easy to distinguish between these types of Pu-erh tea. Raw Pu-erh is obtained from green tea, which undergoes a long and natural maturation process and is called Vintage Raw. It is a traditional version of this product, most often consumed in China. Ripe Pu-erh, on the other hand, undergoes the process of the so-called artificial aging which was introduced to shorten the manufacturing process. Such differences in the technological processing of the raw material lead to the production of tea with different chemical and sensory profiles. Distinguishing Raw and Ripe Pu-erh is not that hard if the Raw version is relatively young. However, in the case of Vintage Raw and high-quality Ripe Pu-erh, the differences are not so obvious. Confirmation of the origin of a given tea, its age, and type should be done by tea masters. While purchasing Pu-erh tea, traders most often rely on the opinions of the tea masters, but instrumental methods allowing determination of the type of Pu-erh tea have been searched for years.

Therefore, the main aim of this study was to determine the parameters that allow the identification of types of Pu-erh tea. The specific aim was to assess the quality of Pu-erh tea available on the Tri-City market in terms of its authenticity, using selected analytical methods.

The analysis of the quality of Pu-erh tea, both purchased in the Tri-City and purchased in China, consisted in determining such parameters as content of polyphenolic compounds, content of soluble oxalic acid and selected methyloxanthines, determination of color parameters, determination of antioxidant activity, and also determination of the total number of fungi on the dried surface and in infusions. On the basis of the obtained results, it was found

that Pu-erh tea available on the Tri-City market is the Ripe Pu-erh version. It is therefore a product that has undergone a process of artificial aging.

The method of fluorescence spectrometry was proposed to identify the different types of Pu-erh tea. It has been shown that the fluorescence spectra of tea infusions of particular types of Pu-erh tea showed some differences, which allows for the determination of the type of product and confirmation of its authenticity. In turn, the chromatographic analysis performed showed that the ratio of theogallin to gallic acid can be an effective tool for confirming the authenticity of Pu-erh tea types. Previous studies have shown that in traditional products such as Raw Pu-erh, the theogallin content exceeded the determined content of gallic acid. In turn, the raw material subjected to the artificial aging process, i.e. Ripe, was characterized by a higher content of gallic acid. In addition to the fluorescence spectrometry method, the determination of theogallin and gallic acid content can be another tool to test the authenticity of Pu-erh tea.

The methods proposed in the study have not been used so far to test the authenticity of Pu-erh tea. As this area has not been fully explored, the results obtained could inspire scientists to conduct further research on Pu-erh tea authenticity.

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