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**MICROENCAPSULATION OF WILLOWHERB LEAVES EXTRACT WITH
MALTODEXTRIN AND WHEY PROTEIN USING SPRAY DRYING**

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Willowherb (*Epilobium angustifolium* L.) leaves are valuable source of polyphenolic compounds (phenolic acids, flavonoids and ellagitannins) that are mainly used in the treatment of benign prostatic hyperplasia. Spray drying as a fast, inexpensive, affordable, and flexible technique is the most commonly used method for encapsulating unstable compounds such as polyphenols on an industrial scale. Choosing the optimal carriers is one of the key steps in the development of the appropriate encapsulation process. In the presented research, the influences of maltodextrin and whey protein as carriers on the efficiency of spray drying and physicochemical properties of the obtained extract powders were investigated. The use of carriers significantly improved the drying yield (63.76% and 63.18% for extracts with maltodextrin and whey protein, compared to 47.75% for extract without carrier). Whey protein has shown significantly better encapsulation efficiency of polyphenolic compounds (92.02%) compared to maltodextrin (75.80%). Similar to phenols, higher encapsulation efficiency of total flavonoids was achieved in the case of whey protein (94.34%) compared to maltodextrin (93.00%) but this difference was not statistically significant. The moisture content (below 5%) and hygroscopicity (below 20%) of all dried extracts (without carrier, with maltodextrin and whey protein) were at an acceptable level to ensure microbiological stability. The time required to rehydrate the extracts in the aqueous medium was 30 seconds for both extracts with carriers, and 20 seconds for the extract without carriers. Relatively short rehydration time of dry extracts provides the possibility to use them in the form of instant teas. Therefore, willowherb leaves extract can be successfully encapsulated by spray drying using maltodextrin and whey protein as carriers.

Keywords: *Epilobium angustifolium*; Encapsulation; Carriers; Wall materials; Spray drying

Acknowledgements: *Ministry of Education, Science and Technological Development of Republic of Serbia, contract number 451-03-9/2021-14/200003*