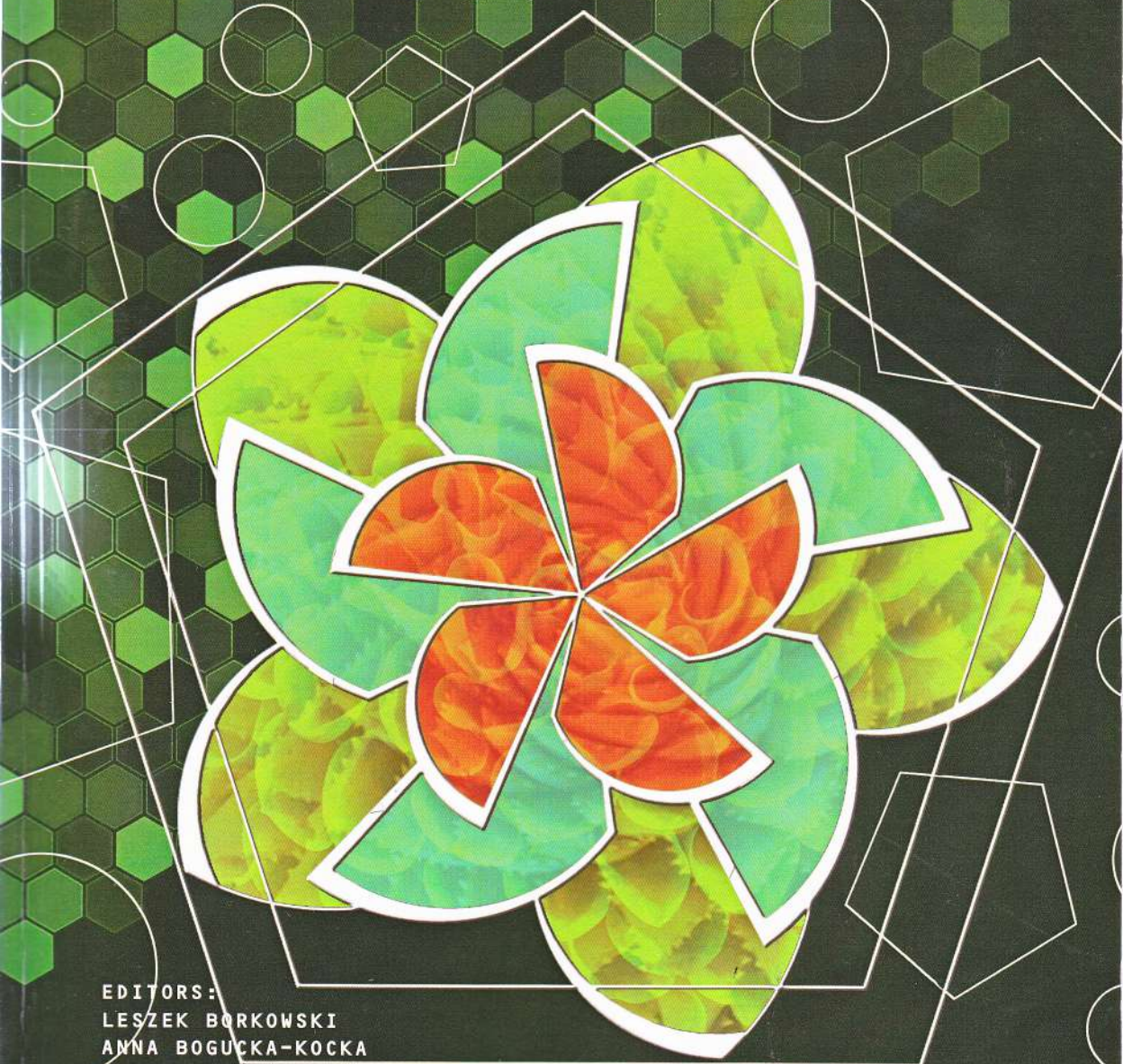
6th INTERNATIONAL CONFERENCE

PLANT
- THE SOURCE OF RESEARCH MATERIAL
ROŚLINA
-ŹRÓDŁEM MATERIAŁU BADAWCZEGO



EDITORS:
LESZEK BORKOWSKI
ANNA BOGUCKA-KOCKA
JANUSZ KOCKI
IRENEUSZ SOWA

NAŁĘCZÓW 2019

6th International Conference and Workshop

Plant
– the source of research material

Book of Abstracts

10 – 12 September 2019, Lublin – Nałęczów, Poland
Conference Centre of the "Przepióreczka" Hotel

O-10

Matrix tablets as a delivery system for herbal drugs

Kolisnyk Tetiana*, Ruban Olena

Department of Industrial Technology of Drugs, Faculty of Pharmacy, National University of Pharmacy, Kharkiv, Ukraine

Herbal drugs are known to have valuable advantages compared to synthetic ones; however, they often require repeated administration to maintain constant plasma levels, which reduces their compliance. Nowadays this problem can be solved by formulating matrix type systems for sustained delivery, such as matrix tablets (MTs). Besides, MTs can provide site-specific delivery of herbal drugs (for instance, gastroretentive floating MTs, intestine or colon targeted MTs).

In MTs the active ingredients are homogeneously distributed in polymer matrix, formed by retardants – excipients which act as a barrier for immediate drug release. Depending on the retardants used, the matrix can be hydrophilic or hydrophobic and the release mechanism – diffusion through swollen viscous gel like matrix or gradual erosion of non-soluble matrix, or combination thereof. There are a variety of retardants suitable for MT formulation, e.g. cellulose derivatives (HPMC, HPC, HEC, etc.), alginates, waxes, natural gums and others.

MTs are commonly used dosage form for sustained delivery of many marketed synthetic drugs. However, in the case of herbal drugs there are some features which should be taken into account during MT development process. First of all, herbal drugs, such as extracts, are not individual substances, but multi-component products, therefore a proper analytical marker(s) for sustained release must be chosen. Usually it is the same marker which is used for therapeutic activity. If the group of compounds is used as a therapeutic activity marker, then it can also serve as a sustain release marker, but it have to be considered that the release profiles for individual compounds may differ from the group profile. In addition, extract marker constituents may vary in physicochemical properties, such as solubility in different pH, and the achievement of their synchronous release would be a challenge.

In spite of these challenges, MTs can be successfully applied for herbal drug delivery. An example of this is MT formulation for Vaccium myrtillus leaf extract proposed by us to reduce administration frequency and enhance antidiabetic efficacy, which has been proved by in vivo experiments.