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## SYNTHESIS AND ANALYSIS OF DRUGS

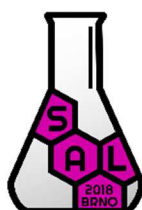


12<sup>th</sup> September – 14<sup>th</sup> September 2018

Faculty of Pharmacy

University of Veterinary and Pharmaceutical Sciences Brno

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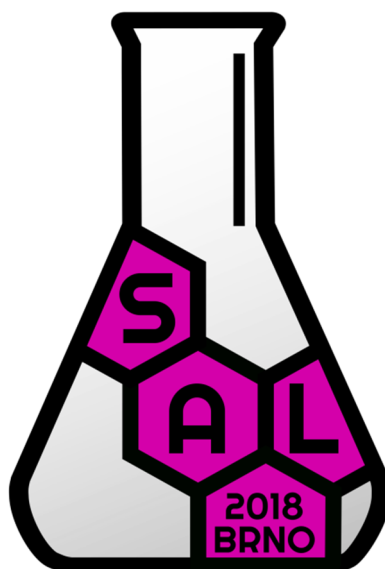
# Book of Abstracts

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<b>P-16</b>	THE INTERACTION OF CERAMIDE TRAFFICKING INHIBITOR HPA-12 SERIES WITH NEUTRAL PHOSPHOLIPIDS: A SMALL-ANGLE X-RAY DIFFRACTION STUDY <i>Chovancová M., Berkeš D., Búcsi A., Kanjaková N., Martínez J. C., Uhríková D.</i>	52
<b>P-17</b>	PHYTOCHEMICAL ANALYSIS OF <i>AMORPHA FRUTICOSA</i> , FABACEAE AND ITS BIOLOGICAL ACTIVITY <i>Jankovská D., Klobouk J., Kocourková M., Hošek J., Hanáková Z., Gazdová M., Žemlička M.</i>	53
<b>P-18</b>	AMARYLLIDACEAE ALKALOIDS FROM <i>ZEPHYRANTHES CITRINA</i> AND THEIR BIOLOGICAL ACTIVITY <i>Kohelová E., Maříková J., Cahlíková L., Opletal L.</i>	54
<b>P-19</b>	DESIGN AND EVALUATION OF ANTIDIABETIC SUSTAINED RELEASE MATRIX TABLETS CONTAINING HERBAL EXTRACT <i>Kolisnyk T., Ruban O.</i>	55
<b>P-20</b>	ANCHIMERIC ASSISTANCE IN REGIOSELECTIVE TRANSFORMATIONS OF PHTHALATES <i>Krivec M., Košmrlj J.</i>	56
<b>P-21</b>	PHYTOCHEMICAL ANALYSIS AND BIOLOGICAL ACTIVITY TESTING OF NOVEL GERANYL FLAVONOIDS FROM <i>PAULOWNIA TOMENTOSA</i> FRUITS <i>Leláková V., Brezáni V., Šmejkal K., Hošek J.</i>	57
<b>P-22</b>	CONDITIONS FOR ANALYSIS OF BIOLOGICAL SAMPLES IN SOLID AND LIQUID FORMS USING RADIONUCLIDE X-RAY FLUORESCENCE SPECTROMETRY <i>Lukačovičová O., Mikuš P.</i>	58
<b>P-23</b>	ISOLATION OF IRIDOID AGLYCONS FROM THE UNDERGROUND PART OF <i>LATHRAEA SQUAMARIA</i> L. <i>Malaník M., Daňková I., Pokorná M., Šmejkal K.</i>	59
<b>P-24</b>	$^1\text{H}$ - $^{15}\text{N}$ NMR CORRELATION SPECTROSCOPY AS A TOOL FOR DISTINGUISHING BETWEEN ISOMERIC NITROGEN CONTAINING HETEROCYCLES <i>Martek B. A., Mihelač M., Virant M., Gazvoda M., Krivec M., Košmrlj J.</i>	60
<b>P-25</b>	THE CHOICE OF INTENSE SWEETENER IN THE COMPOSITION OF MEDICATED CHEWING GUM UNDER DEVELOPMENT <i>Maslii Y. S., Ruban O. A.</i>	61
<b>P-26</b>	TAGGING ANTI-TUBERCULAR TRIAZENE DERIVATIVES BY AN AZIDO GROUP <i>Mihelač M., Gazvoda M., Košmrlj J.</i>	63
<b>P-27</b>	NON-TOXIC CONCENTRATIONS OF GENISTEIN AND QUERCETIN: COMPARISON OF ROS GENERATION IN 3T3 AND MCF-7 CELLS <i>Mitrengová P., Lachová V., Šušaničková I., Gál P.</i>	64
<b>P-28</b>	SYNTHESIS AND SPECTRAL ANALYSIS OF BENZOFURANE DERIVATIVES CONTAINING <i>N</i> -ARYLPIPERAZINE MOIETY <i>Mokrý P., Dojčinovičová A., Padrtová T., Marvanová P.</i>	65
<b>P-29</b>	AN HPLC METHOD FOR THE DIFFERENTIATION OF PRENYLATED FLAVONOIDS FROM <i>PAULOWNIA TOMENTOSA</i> FRUITS <i>Molčanová L., Šmejkal K.</i>	66
<b>P-30</b>	ANTIMICROBIAL ACTIVITY OF JUGLONE AND MENADIONE AGAINST SELECTED HUMAN PATHOGENS <i>Nejezchlebova M., Sztefková I., Božik M.</i>	68

## THE CHOICE OF INTENSE SWEETENER IN THE COMPOSITION OF MEDICATED CHEWING GUM UNDER DEVELOPMENT

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The creation of modern drugs in a rational dosage form with optimal taste characteristics is one of the ways to increase their competitiveness. Taste is one of the characteristic features of a chewing gum, as this product remains in the oral cavity for a longer time than other oral medicines [1,2]. To ensure a good taste profile of medicated chewing gum (MCG), intense sweeteners are used in pharmacy that not only improve and disguise an unpleasant taste, but also compensate for the lack of sweetness in a sugar-free chewing gum [1-3]. The object of our research was the MCG we developed with lysozyme hydrochloride and ascorbic acid based on the composition HiG-01 (Cafosa, Spain) [3], recommended for use in dentistry. The purpose of this work was to select the optimal intense sweetener in its composition, as which were investigated: Stevia RN (Germany); Acesulfam K (Germany); Ajinomoto Aspartame Fine Granular 150 (France); Sodium Cyclamate anhydrous powder E-952 (Germany); Sodium Saccharin HQ 15% hydrated E-954 (Germany); Solo Sucralose-Non Micronised NF (India) [2].

To determine the taste and, as a consequence, the corrective ability of sweeteners in the medicinal product, an organoleptic method for estimating corrigents was used with the help of numerical indexes according to A.I. Tentsova and the method for assessing taste using alphabetic and numeric indices, proposed by I.A. Yegorov [4]. According to A.I. Tentsova group of volunteers of 20 people evaluated the taste of samples considering such parameters: "sweetness" (1 – unsweetened, 5 – very sweet), "presence of aftertaste" (1 – absent, 5 – strong), "nature of aftertaste" (1 – unpleasant, 5 – very pleasant), "taste compatibility of flavors and medicinal substance" (1 – incompatible, 5 – compatible), "taste in general" (1 – unpleasant, 5 – pleasant). From the data obtained, the taste index is derived, as the arithmetic mean of all indices. According to I.A. Yegorov, taste sensations are conditionally denoted by capital letters "So" – sour, "Sw" – sweet, "B" – bitter, "Sa" – salty. It is possible to determine the shades of the main taste, such as "sweet and sour" (SoSw), "bitter-sour-sweet" (BSoSw), etc., where the first letter indicates the prevailing taste. Threshold taste sensations are denoted by index 1 – tasteless, the standard of which is purified water. Index 2 shows weak flavors; for their determination, standard solutions are prepared for 4 flavors: B2 – 0.0002% aqueous solution of quinine hydrochloride; So2 – 0.02% aqueous solution of citric acid; Sa2 – 0.1% aqueous solution of sodium chloride and Sw2 – 0.38% solution of sucrose. Index 3 indicates the normal intensity of taste, habitual for a person in everyday life; 4 – supersaturated taste, causing irritation. The results are shown in Table 1.

Table 1 – Test results for the taste of MCG samples with various intense sweeteners

№ of composition	Main taste evaluation	Taste formula	General taste / Aftertaste duration
1 (control)	2,10 ± 0,10	So3Sw2	sour, weak-sweet / 1 ± 0.5 min
2	3,40 ± 0,12	So3Sw2	sour-weakly sweet / 2 ± 0.5 min
3	4,10 ± 0,10	So3Sw3	sour-sweet / 4 ± 1 min
4	4,70 ± 0,10	So3Sw3	refreshing sour-sweet / 4 ± 1 min
5	1,55 ± 0,15	B2So3	weakly-bitter-sour taste with metal tinge / 1 ± 0.5 min
6	4,80 ± 0,10	So3Sw4	intensive sour-sweet; with mawkish sweet aftertaste / 6 ± 1 min
7	4,95 ± 0,05	So3Sw3	intensive sour-sweet; with pleasant sweet aftertaste / 7 ± 1 min

According to the results obtained, all the compositions, except for the sample with saccharin sodium, had a corrective ability and had a similar sweet and sour taste. However, not all of them had a long time of sweet aftertaste, which is very important for this dosage form, because the recommended chewing time of the dental MCG is 5-7 minutes. The highest numerical indices had samples of MCG with sodium cyclamate, stevia and sucralose. Taking into account the complex of the obtained results, sucralose has the best correcting characteristics from all the intense sweeteners investigated.

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