

**B041 Fatty acids composition in fruit of wild rose species**R. Nowak<sup>a</sup>, A. Bogucka-Kocka<sup>a</sup>, A. Stolyhwo<sup>b</sup> and T. Krzaczek<sup>a</sup><sup>a</sup> Department of Pharmaceutical Botany, Medical University, 4 Staszica St., 20-081 Lublin, Poland, <sup>b</sup> Department of Chemistry, Technical University, 11 Narutowicza St., 80-952 Gdańsk, Poland.

Rose hips have been used both in treatment and in food industry for many years, mainly because of their high content of vitamins, especially vitamin C. The fruit usually represent a waste material during production of pharmaceutical and nourishing medicaments. In the meantime they are an underestimated source of valuable oil containing unsaturated fatty acids, which are essential for correct functioning of human organism. The data mentioned in references show that content of oils and fatty acids in some of the rose species were partly investigated, however there is lack of complex comparing examinations in this field (1, 2, 3).

In the study comparison of the amount and composition of fatty acids, especially unsaturated ones from 11 rose species growing commonly in Poland was established for evaluating their pharmaceutical properties. The oil was extracted with n-hexane. The obtained oil samples were methylated and fatty acid methyl esters were analyzed using GLC (4, 5). A Hewlett-Packard Model 6890 chromatograph equipped with flame ionization detector was used. Results were quantified by measurement of peak areas. The content of oil in rose fruit of particular species ranged from 6.2% to 12.9%. The highest amount of oil (>10%) was stated in the fruit of *R. rugosa*, *R. subcanina* and *R. canina*. The composition of oils was similar in investigated species. 17 components were identified. An average composition was estimated as follows: linoleic acid C<sub>18:2</sub> 9,12 (44.4-55.7%), α-linolenic acid C<sub>18:3</sub> 9,12,15 (18.6-31.4%), oleic acid C<sub>18:1</sub> 9 (13.5-20.3%), palmitic acid C<sub>16:0</sub> (2.3-3.3%), stearic acid C<sub>18:0</sub> (1-2.5%), octadecenic acid C<sub>18:1</sub> 11 (0.38-0.72%), eicosanoic acid C<sub>20:1</sub> (0.3-0.7%), eicosanodienoic acid C<sub>20:2</sub> (0-0.16%), erucic acid C<sub>22:1</sub> (0.03-0.17%) and minor fatty acids. The identification of the compounds was performed by comparison of their retention times and mass spectra with data of the authentic samples and references. All of the investigated oils showed a high quantity of essential unsaturated fatty acids ranging from 71% to 78%, which was considered promising for pharmaceutical purposes.

**References:** 1. Stepanov, L. et al. (1983) Maslo-Sap. Prom. -St. 19: 38. 2. Malec, L. S. et al. (1993) An. Asoc. Quim. Arg. 81: 445-450. 3. Cisowski, W. et al. (1995) Herba Pol. 41: 170-177. 4. Official Method of AOCS Ce 16-89. 5. Stolyhwo, A. et al. (1985) Anal. Chem. 57: 1342.

**B042 Epicuticular wax profile for the leaves of *Newbouldia laevis* Seem. and its possible ecological and medicinal significance**R. Gormann<sup>a</sup>, L. Schreiber<sup>b</sup> and H. Kolodziej<sup>a</sup><sup>a</sup> Institut für Pharmazie, Pharmazeutische Biologie, Freie Universität Berlin, Königin-Luise-Str. 2+4, D-14195 Berlin, Germany. <sup>b</sup> Institut für Botanik, Abteilung Ökophysiologie, Rheinische-Friedrich-Wilhelms-Universität Bonn, Kirsachallee 1, D-53115 Bonn, Germany.

*Newbouldia laevis* Seem. (Bignoniaceae) is a small tree of the tropical rain forest and Savannah zones of Western Africa that is widely used by the native population for the treatment of various diseases (1). The plant is also used in the Nyabatso agroforestry system for quality crop cultivation between the trees. So far, no studies have been carried out on the leaves of this species which could provide a clue for both traditional medication and the mentioned agroecosystem. Here we report the chemical leaf wax composition.

The surface lipids were extracted from leaves by immersing tissues in chloroform for 30 s and the extractives analysed by GC-MS and GC-FID. Derivatization of sample aliquots was performed using BSTFA as silylating reagent. The average total wax load for the leaves of *N. laevis* was found to be 11.5 µg/cm<sup>2</sup>. The triterpenoids oleanolic and ursolic acid constitute the most abundant wax chemical components (9.7 µg/cm<sup>2</sup>) with the latter representative as dominating compound (72%), followed by a series of long-chain homologous alkanes (C<sub>26</sub> – C<sub>33</sub>) (1.7 µg/cm<sup>2</sup>) and traces of fatty acids (C<sub>22</sub> – C<sub>33</sub>) (0.15 µg/cm<sup>2</sup>), which represent typical constituents of epicuticular waxes. With regard to the seen profile, the presence of ursolic acid in considerable amounts is significant in that this compound is well known to possess antimicrobial (2) and antifeeding properties (3) as well as antitumoural activity (4).

**References:** 1. Burkill, H.M. (1985) The Useful Plants of West Tropical Africa, Vol. 1, Royal Botanic Gardens, Kew, London. 2. Collins, M.A. and Charles H.P. (1987) Food Microbiol. 4: 311. 3. Valencia, E. et al. (1997) Fitoterapia 68: 556. 4. Liu, J. (1995) J. Ethnopharmacol. 49: 57.