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E. Proprietate industrială

E1. Brevete de invenție

E1.1. Jumanca D, Galuscan A, Florita S, Podariu A, Florita Z, Dehelean C, **Borcan F**. *Compoziție pentru pastă de dinți*. Brevet de invenție, nr. 127805, eliberat de OSIM în 28.II.2014.

E1.2. Jumanca D, Gălușcan A, **Borcan F**, Florița S, Dehelean C, Florița Z. *Procedeu și dispozitiv pentru producerea nanogelurilor și microgelurilor pe bază de silicați alcalino-pământoși*. Brevet de invenție, nr. 128480, eliberat de OSIM în 26.II.2016.

E1.3. UMF Timișoara (**Borcan F**, Șoica CM, Florița S, Gălușcan A, Jumanca D). *Vehicul polieter-uretanic pentru transportul transdermic al unor compuși farmaceutici utilizați în stomatologie*. Brevet de invenție, nr. 128801, eliberat de OSIM în 29.XI.2017.

E1.4. UMF Timișoara (Borcan L-C, Popescu FG, **Borcan F**, Păuncu E-A, Tomescu MC, Dehelean CA). *Produs absorbant pentru hidrogen sulfurat și procedeu de obținere a acestuia*. Brevet de invenție nr. 133956, eliberat de OSIM în 30.III.2021.

E1.5. UMF Timișoara (**Borcan F**, Dehelean CA, Soica CM). *Procedeu de obținere a unui transportor transdermic al aciclovirului*. Brevet de invenție, nr. 134816, eliberat de OSIM în 30.VI.2023.

E1.6. UMF Timișoara (Șerban C, Novac AC, Neagu CS, Zaharia C, Jivănescu A, Leretter MT, Romînu M, Negruțiu ML, **Borcan F**, Sinescu C, Levai C). *Restaurări protetice parțiale fixe agregate pe fațete dentare cu extensii axiale de tip pini parapulpari*. Cerere de brevet de invenție nr. A / 00486 înregistrată la OSIM în 10.VIII.2022.

E1.7. UMF Timișoara (**Borcan F**, Popescu R, Szuhaneck CA, Șoica CM, Dehelean CA). *Nanogel poliuretanic cu aplicabilitate în terapia genică a bolilor rare ale pielii*. Cerere de brevet de invenție nr. A / 00718 înregistrată la OSIM în 11.XI.2022.

E1.8. UMF Timișoara (Nagib R, **Borcan F**, Szuhaneck CA). *Dispozitiv ortodontic personalizat proiectat CAD pentru dinți incluși și procedeu de obținere*. Cerere de brevet de invenție nr. A / 00582 înregistrată la OSIM în 19.X.2023.

E2. Mărci înregistrate

E2.1. **Borcan F**, Borcan L-C, Tomescu MC, Florea S-D, Morariu V-I. *BoToFl.m*. Certificat de înregistrare a mărcii nr. 161222 (OSIM 04.01.2019).

E2.2. **Borcan F**, Borcan L-C, Dehelean CA, Soica C-M. *pharm na-mi S*. Certificat de înregistrare a mărcii nr. 167149 (OSIM 04.06.2020).

F. Granturi de cercetare

F1. Director

F1.1. „Nanotehnologii de poliuretani acoperiți cu strat antimicrobian”, valoare 32.000 lei, 2007-2008, finanțator: CNCSIS, grant TD137 / 2007.

F1.2. „Nanocapsule polieter-uretanic utilizate ca vehicule de transport transdermic pentru substanțe biologice active”, valoare 300.000 lei, 2010-2012, finanțator: CNCSIS, grant RU-PD586 / 2010.

F1.3. „Implementarea unor noi direcții de biosinteză cu dublă funcționalizare pentru triterpene pentaciclice cu potențial antitumoral”, valoare 5.000 euro, 2013, finanțator: UMF Timișoara, grant competiție internă 15250 / 19.XII.2012.

F1.4. „Study on Molecular Docking, Synthesis and Characterization of a Polyurethane Biomaterial used as a DNA Carrier”, valoare 100.000 euro, 2020-2023, finanțator: UMF Timișoara, grant competiție internă – Cercetători experimentați 5EXP/1244/ 30.01.2020.

F2. Membru în echipă

F2.1. „Unificarea cuantică a legăturii chimice prin funcționala densitate a electronegativității și funcția de localizare electronică cu aplicații la reactivitatea nano-sistemelor naturale complexe”, valoare 8.930 lei, 2006-2007, finanțator: CNCSIS, grant AT54 / 2006 (director Putz VM).

F2.2. „Evaluarea unor formulări farmaceutice moderne obținute prin complexarea unor triterpene pentaciclice cu derivați polizaharidici funcționalizați”, valoare 24.350 lei, 2013-2014, finanțator: UEFISCDI, grant PN II – Capacități, CT-163/22.04.2013, Modul III - proiecte bilaterale România-Ungaria (contract 674/22.IV.2013) (director Șoica CM).

F2.3. „Recuperarea avansată a produselor utile din deșeurile de catalizatori uzați”, valoare 1.250.000 lei, finanțator: UEFISCDI, parteneri: ProAirCleanEcologic SA, INCD Ecolnd, coordonator Institutul de Chimie Timișoara, grant PN-II-PT-PCCA-2013-4-0612 (director Costișor O).

F2.4. „Obtaining pentacyclic triterpene micro-crystals and pharmaceutical toxicology study of their changes in experimental models”, finanțator: UEFISCDI, grant RO-FR 2014, 791/30.VI.2014 (director Nicolov M).

F2.5. „Formulări de avangardă pe bază de eugenol nanocapsulat cu adresabilitate în medicina dentară”, valoare 440.001 lei, finanțator: UEFISCDI, PN-III-P2-2.1-BG-2016-0455 (contract 122/2016) (director Rusu L).

F3. Obținut fără competiție

F3.1. „Studiu privind realizarea de îmbunătățiri ale procesului de obținere a branșurilor încălzimintei din dotarea trupelor NATO”, valoare 3.000 lei, 2005-2006, finanțator: SC Uretan SA Chevereșu Mare, membru echipă (director Bolcu C).

I. Manifestări științifice

I1. Lucrări în extenso

I1.1. Vlase G, **Borcan F**, Bolcu C, Doca N, Vlase T. Thermal stability of different polyurethane compositions by means of non-isothermal kinetics. *European Conference on Calorimetry and Thermal Analysis for Environment, Zakopane (Polonia), 06-11.IX.2005*, p. 95-100.

11.2. Pitulice L, Chiriac A, Isac D, **Borcan F**. The investigation of Romania's air quality state and the Environmental Performance Index. *1st International Conference "Research People and Actual Tasks on Multidisciplinary Sciences", Lozenec (Bulgaria) 06-08.VI.2007*, p. 107-111, ISBN 978-954-91147-3-7.

11.3. Bolcu C, **Borcan F**, Davidescu D, Campean G. The study of a biostimulating composition with a possible foliage application to a large group of agrarian crops. *1st International Conference "Research People and Actual Tasks on Multidisciplinary Sciences", Lozenec (Bulgaria) 06-08.VI.2007*, p. 262-266, ISBN 978-954-91147-3-7.

11.4. Bolcu C, **Borcan F**, Nuțiu R. The microcelular polyurethane elastomers used to obtain high elasticity joint. *1st International Conference "Research People and Actual Tasks on Multidisciplinary Sciences", Lozenec (Bulgaria) 06-08.VI.2007*, p. 258-261, ISBN 978-954-91147-3-7.

11.5. Simu GM, Dragomirescu A, Dehelean CA, **Borcan F**. In vivo study of the efficiency of a cosmetic emulsion containing acetyl tetrapeptide-5. *5th Symposium „New trends and strategies in the chemistry of advanced materials”, Timișoara, 03-04.XI.2011*, p. 56-61, ISSN 2065-0760.

11.6. **Borcan F**, Șoica CM. Drug delivery system based on poly(ether urethane) used for topic application. *5th Symposium „New trends and strategies in the chemistry of advanced materials”, Timișoara, 03-04.XI.2011*, p. 70-75, ISSN 2065-0760.

12. Rezumate

12.1. **Borcan F**, Bolcu C. Descompunerea termică a compușilor staniului (II). *Conferința Națională de Chimie, Călimănești-Căciulata, 06-08.X.2004*, p. 42, ISBN 973-8488-74-5.

12.2. Bolcu C, **Borcan F**. Sisteme polimerice utilizate pentru protecția anticorozivă a conductelor petroliere. *Conferința Națională de Chimie, Călimănești-Căciulata, 06-08.X.2004*, p. 62, ISBN 973-8488-74-5.

12.3. Bolcu C, **Borcan F**. Studii privind sinergismul stabilizatorilor utilizați în domeniul poliuretanilor. *Conferința Națională de Chimie, Călimănești-Căciulata, 06-08.X.2004*, p. 269, ISBN 973-8488-74-5.

12.4. **Borcan F**, Bolcu C. Aplicații ale stabilizării termo- și foto-oxidative reactive în domeniul poliuretanilor. *Conferința Națională de Chimie, Călimănești-Căciulata, 06-08.X.2004*, p. 293, ISBN 973-8488-74-5.

12.5. Bolcu C, **Borcan F**. Adeziv poliuretanic pentru lipirea cablurilor autoturismelor. *Zilele Academice Timișene, Timișoara, 26-27.V.2005*, p. 108.

12.6. Bolcu C, **Borcan F**. Poliuretan pentru curele de transmisie auto. *Zilele Academice Timișene, Timișoara, 26-27.V.2005*, p. 154.

12.7. Bolcu C, **Borcan F**. Efficient methods for photostabilization of the polyurethanes. *The 8th Polymers for Advanced Technologies International Symposium, Budapesta (Ungaria), 13-16.IX.2005*, p. 97.

12.8. Bolcu C, **Borcan F**, Nuțiu R. Considerations regarding the thermal stability of the urethane and alophanate groups from thermal-oxidative stabilized polyurethanes. *1st European Chemistry Congress, Budapesta (Ungaria), 27-31.VIII.2006*, p. 281, ISBN 963-9319-61-9.

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12.10. Bolcu C, **Borcan F**, Nuțiu R. Correlation of the Rheological Properties of the Bicomponent Polyurethane Adhesives with the Physical and Mechanical Properties of the Elastic Junctions Made with Them. *12th International Conference of Physical Chemistry, București, 6.IX.2006*, p. 156.

12.11. Bolcu C, **Borcan F**, Nuțiu R, Dehelean T. Bicomponent polyurethane system used for manufacture of fittings which work at high pressures in mineral oil. *Zilele Academice Timișene, Ediția a X-a, Timișoara, 24-25.V.2007*, p. 17, ISBN 978-973-52-0130-2.

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12.14. **Borcan F**, Bolcu C, Nuțiu R. Obținerea unor materiale poliuretanic utilizate ca suporturi de substanțe antiseptice. *Zilele Academice Ieșene, Iași, 26-29.IX.2007*, p. 24.

12.15. **Borcan F**, Filimon N, Bolcu C, Nuțiu R. Polyurethane foam with antimicrobial activity. *48th Microsymposium: Polymer Colloids From Design to Biomedical and Industrial Applications, Praga (Rep. Ceha), 20-24.VII.2008*, p. 181, ISBN 978-80-85009-57-6.

12.16. Bolcu C, **Borcan F**, Vlase T, Doca N, Jurcău D. Mixed thermal-oxidative stabilization – a modern method for the polyurethane stabilization. *Zilele Academice Timișene, Ediția a XI-a, Timișoara, 28-29.V.2009*, p. 43, ISBN 978-973-52-0630-7.

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12.20. Trandafirescu C, Gheorgheosu D, **Borcan F**, Oprean C, Ionescu D. Preliminary evaluation of the synergistic activity of lupeol and betulin. *UV Radiation and Skin Pathology, workshop Timișoara 2014*, p. 18, ISBN 978-606-8456-32-4.

12.21. Pînzaru I, Mioc M, Șoica C, **Borcan F**, Dehelean C, Gheorgheosu D. Oleanolic acid derivatives with ester structure and their activity against photochemical skin carcinoma. *UV Radiation and Skin Pathology, workshop Timișoara 2014*, p. 19, ISBN 978-606-8456-32-4.

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- 12.26. Ciurlea SA, Ardelean S, **Borcan F**, Ionescu D. The role of UV-VIS analysis in evaluation study of the purity of natural compounds. *UV Radiation and Skin Pathology, workshop Timișoara 2014*, p. 47, ISBN 978-606-8456-32-4.
- 12.27. Trandafirescu C, Oprean C, Ardelean S, **Borcan F**, Ciurlea S. Toxicological evaluation of some nanoparticles with potential biological activity. *UV Radiation and Skin Pathology, workshop Timișoara 2014*, p. 48, ISBN 978-606-8456-32-4.
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- 12.29. **Borcan F**, Andrica F, Tita B. Study of lupeol release from a polyurethane carrier. *Natural Products as a Source of Compounds with Chemopreventive and Anti-Inflammatory Activity (International Workshop of the Romanian-French Bilateral Project PN II-CT-789/30.06.2014, Timisoara, 10.VII.2015*, p. 50, ISBN 978-606-8456-67-6.
- 12.30. **Borcan F**, Andrica F, Tita B. Degradation of polyurethane dendrimers used as drug delivery system. *Natural Products as a Source of Compounds with Chemopreventive and Anti-Inflammatory Activity (International Workshop of the Romanian-French Bilateral Project PN II-CT-789/30.06.2014, Timisoara, 10.VII.2015*, p. 50, ISBN 978-606-8456-67-6.
- 12.31. **Borcan F**, Borcan LC, Tita B, Ledeti A. Assessment of degradation products of polyurethane-based nanoparticles used as a drug delivery system. *The importance of using micro crystals in therapy, workshop Timisoara 2015*, p. 15-17, ISBN 978-606-8456-86-7.
- 12.32. Pinzaru I, Coricovac D, **Borcan F**, Dehelean C. Blue light effects in an animal model. *The importance of using micro crystals in therapy, workshop Timisoara 2015*, p. 58-60, ISBN 978-606-8456-86-7.
- 12.33. Munteanu MF, Orasan-Alic VE, Trifunsi SI, Ardelean SA, Coricovac D, Borcan LC, **Borcan F**. Study on different penetrability of nano- and microparticles. *8th International Conference and Exhibition on Pharmaceutics&Novel Drug Delivery Systems. Madrid, 07-07.III.2016. Pharm Anal Acta 2016*; 8(2 Suppl):123, DOI: 10.4172/2153-2435.C1.028.
- 12.34. Munteanu MF, Gligor R, Borcan L-C, **Borcan F**. Influence of some herbal extracts on the occupational lung disease. *2nd International Conference and Exhibition on Pharmacology and Ethnopharmacology, Chicago, 02-04.05.2016. Clin Exp Pharmacol 2016*, 6(2 Suppl): 85, DOI: 10.4172/2161-1459.C1.011.
- 12.35. Antal DS, Pinzaru I, **Borcan F**, Ledeti I, Dehelean CA, Soica C, Ollivier E. Inclusion complexes of the aurone sulfuretin in two cyclodextrin types: preparation and analytical data. *Phytocompounds and extracts from biodiversity: scaffolds for new products with anti-inflammatory and chemopreventive activity, workshop Timișoara 2016*, p. 11, ISBN 978-606-786-024-5.
- 12.36. **Borcan F**, Borcan L-C, Circioban D, Ledeti A. Effect of pH on the degradation of a polyurethane drug delivery system. *Phytocompounds and extracts from biodiversity: scaffolds for new products with anti-inflammatory and chemopreventive activity, workshop Timișoara 2016*, p. 15, ISBN 978-606-786-024-5.
- 12.37. Circioban D, Ledeti A, Ledeti I, **Borcan F**, Dehelean C. Artemisinin – preliminary physico-chemical analysis. *Phytocompounds and extracts from biodiversity: scaffolds for new products with anti-inflammatory and chemopreventive activity, workshop Timișoara 2016*, p. 29, ISBN 978-606-786-024-5.
- 12.38. Circioban D, Ledeti A, Ledeti I, **Borcan F**, Dehelean C. Isoconversional kinetic analysis for thermal degradation of quercetin. *Phytocompounds and extracts from biodiversity: scaffolds for new products with anti-inflammatory and chemopreventive activity, workshop Timișoara 2016*, p. 30, ISBN 978-606-786-024-5.
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- 12.40. Circioban D, Ledeti I, Vlase G, Ledeti A, Vlase T, **Borcan F**, Axente C, Borcan C, Dehelean C. Guest-host interactions and complex formation for artemisinin with cyclodextrins. *13th Mediterranean Conference on Calorimetry and Thermal Analysis (Medicta 2017), 24-27.IX.2017, Loano (SV), Italy, Book of abstracts*, p. 62.
- 12.41. Pinzaru IA, Rusu L, Dehelean CA, Coricovac D, **Borcan F**. Evaluation of eugenol polyurethane nanostructures toxicological statement. *Eurotox October 2017, Bratislava. Toxicol Letters 2017*, 280(1), S271. <https://doi.org/10.1016/j.toxlet.2017.07.958>
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