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Education

Doctorate, Universiteit Gent, Faculty of Bioscience Engineering, Department of Biochemical and Microbial Technology, Belgium 2013 - 2016
Postgraduate, Middle East Technical University, Faculty Of Engineering, Department Of Environmental Engineering, Turkey 2011 - 2013
Undergraduate, Middle East Technical University, Faculty Of Engineering, Department Of Environmental Engineering, Turkey 2006 - 2011

Foreign Languages

English, C2 Mastery

Research Areas

Environmental Microbiology, Environmental Biotechnology

Academic Positions

Assistant Professor, Hacettepe University, Mühendislik Fakültesi, Çevre Mühendisliği Bölümü, 2019 - Continues
Assistant Professor, Abdullah Gul University, Mühendislik Fakültesi, İnşaat Mühendisliği, 2017 - 2019
Research Assistant, Universiteit Gent, Faculty of Bioscience Engineering, Department of Biochemical and Microbial Technology, 2013 - 2016
Research Assistant, Middle East Technical University, Faculty Of Engineering, Department Of Environmental Engineering, 2011 - 2012

Journal articles indexed in SCI, SSCI, and AHCI

I. **Variation of microbial self-healing performance of cementitious composites with their biogranule**

content
SÖNMEZ TUĞLUCA M., ERŞAN Y. Ç., ŞAHMARAN M.
CEMENT & CONCRETE COMPOSITES, vol.152, 2024 (SCI-Expanded)

II. **Production of calcium carbonate-precipitating biomass powder as self-healing additive in concrete and performance evaluation in mortar**
Zhu X., Sakarika M., Ganigué R., Van Tittelboom K., ERŞAN Y. Ç., Boon N., De Belie N.
Cement and Concrete Composites, vol.138, 2023 (SCI-Expanded)

III. **Life cycle assessment of lightweight concrete containing recycled plastics and fly ash**
ERŞAN Y. Ç., GÜLÇİMEN S., Imis T. N., Saygin O., UZAL N.
EUROPEAN JOURNAL OF ENVIRONMENTAL AND CIVIL ENGINEERING, vol.26, no.7, pp.2722-2735, 2022 (SCI-Expanded)

IV. **Production and compatibility assessment of denitrifying biogranules tailored for self-healing concrete applications**
Sönmez M., Erşan Y. Ç.
CEMENT & CONCRETE COMPOSITES, vol.126, 2022 (SCI-Expanded)

V. **The effect of chemical- versus microbial-induced calcium carbonate mineralization on the enhancement of fine recycled concrete aggregate: A comparative study**
Sönmez M., Ilcan H., Dundar B., Yıldırım G., Erşan Y. Ç., Şahmaran M.
JOURNAL OF BUILDING ENGINEERING, vol.44, 2022 (SCI-Expanded)

VI. **Microbially induced desaturation and carbonate precipitation through denitrification: A review**
Lin W., Lin W., Cheng X., Chen G., ERŞAN Y. Ç.
Applied Sciences (Switzerland), vol.11, no.17, 2021 (SCI-Expanded)

VII. **Compatibility and biomineralization oriented optimization of nutrient content in nitrate-reducing-biogranules-based microbial self-healing concrete**
Kardogan B., Sekercioglu K., ERŞAN Y. Ç.
Sustainability (Switzerland), vol.13, no.16, 2021 (SCI-Expanded)

VIII. **Surface Consolidation of Maastricht Limestone by Means of Bacillus Sphaericus under Varying Treatment Conditions**
ERŞAN Y. Ç., Wang J., Fraeye D., Boon N., De Belie N.
Journal of Materials in Civil Engineering, vol.32, no.11, 2020 (SCI-Expanded)

IX. **Nitrite producing bacteria inhibit reinforcement bar corrosion in cementitious materials**
Erşan Y. Ç., Van Tittelboom K., Boon N., De Belie N.
Scientific Reports, vol.8, no.1, 2018 (SCI-Expanded)

X. **Impact of air entraining admixtures on biogenic calcium carbonate precipitation and bacterial viability**
Bundur Z. B., Amiri A., Ersan Y. Ç., Boon N., De Belie N.
Cement and Concrete Research, vol.98, pp.44-49, 2017 (SCI-Expanded)

XI. **Enhanced crack closure performance of microbial mortar through nitrate reduction**
Erşan Y. Ç., Hernandez-Sanabria E., Boon N., De Belie N.
Cement and Concrete Composites, vol.70, pp.159-170, 2016 (SCI-Expanded)

XII. **Nitrate reducing CaCO3 precipitating bacteria survive in mortar and inhibit steel corrosion**
Erşan Y. Ç., Verbruggen H., De Graeve I., Verstraete W., De Belie N., Boon N.
Cement and Concrete Research, vol.83, pp.19-30, 2016 (SCI-Expanded)

XIII. **Application of microorganisms in concrete: a promising sustainable strategy to improve concrete durability**
Wang J., Ersan Y. Ç., Boon N., De Belie N.
Applied Microbiology and Biotechnology, vol.100, no.7, pp.2993-3007, 2016 (SCI-Expanded)

XIV. **Bio-Based Self-Healing Concrete: From Research to Field Application**
Tziviloglou E., Van Tittelboom K., Palin D., Wang J., Sierra-Beltran M. G., Ersan Y. Ç., Mors R., Wiktor V., Jonkers H. M., Schlangen E., et al.
SELF-HEALING MATERIALS, vol.273, pp.345-385, 2016 (SCI-Expanded)

XV. **Microbially induced CaCO3 precipitation through denitrification: An optimization study in minimal nutrient environment**
Erşan Y. Ç., de Belie N., Boon N.
Biochemical Engineering Journal, vol.101, pp.108-118, 2015 (SCI-Expanded)

XVI. **Screening of bacteria and concrete compatible protection materials**
Erşan Y. Ç., Da Silva F. B., Boon N., Verstraete W., De Belie N.
Construction and Building Materials, vol.88, pp.196-203, 2015 (SCI-Expanded)

XVII. **Self-protected nitrate reducing culture for intrinsic repair of concrete cracks**
Ersan Y. Ç., Gruyaert E., Louis G., Lors C., De Belie N., Boon N.
Frontiers in Microbiology, vol.6, 2015 (SCI-Expanded)

XVIII. **The effect of seed sludge type on aerobic granulation via anoxic-Aerobic operation**
Erşan Y. Ç., Erguder T. H.
Environmental Technology (United Kingdom), vol.35, no.23, pp.2928-2939, 2014 (SCI-Expanded)

XIX. **The effects of aerobic/anoxic period sequence on aerobic granulation and COD/N treatment efficiency**
Erşan Y. Ç., Erguder T. H.
Bioresource Technology, vol.148, pp.149-156, 2013 (SCI-Expanded)

Articles Published in Other Journals

I. **Self-Healing Performance of Biogranule Containing Microbial Self-Healing Concrete Under Intermittent Wet/Dry Cycles**
ERŞAN Y. Ç.
JOURNAL OF POLYTECHNIC-POLITEKNIK DERGISI, vol.24, no.1, pp.323-332, 2021 (ESCI)

II. **Overlooked Strategies in Exploitation of Microorganisms in the Field of Building Materials**
ERŞAN Y. Ç.
ECOLOGICAL WISDOM INSPIRED RESTORATION ENGINEERING, pp.19-45, 2019 (Peer-Reviewed Journal)

III. **Volume fraction, thickness, and permeability of the sealing layer in microbial self-healing concrete containing biogranules**
Erşan Y. Ç., Palin D., Yengec Tasdemir S. B., Taşdemir K., Jonkers H. M., Boon N., De Belie N.
Frontiers in Built Environment, vol.4, 2018 (Scopus)

IV. **Resilient Denitrifiers Wink at Microbial Self Healing Concrete**
Erşan Y. Ç., De Belıe N., Boon N.
International Journal of Environmental Engineering, vol.2, pp.37-41, 2015 (Peer-Reviewed Journal)

Books

I. **Overlooked Strategies in Exploitation of Microorganisms in the Field of Building Materials**
Erşan Y. Ç.
in: Ecological Wisdom Inspired Restoration Engineering, Varenyam Achal,Abhijit Mukherjee, Editor, Springer-Verlag , Singapore, pp.19-45, 2019

Papers Presented at Peer-Reviewed Scientific Conferences

I. **Improvement of fine recycled aggregates by microbially induced CaCO3 precipitation**
Arıkan E., Bilici S. N., Erşan Y. Ç.
6th Eurasia Waste Management Symposium, İstanbul, Turkey, 24 - 26 October 2022, vol.1, pp.606-613, (Full Text)

II. **A novel non-axenic granulated culture based microbial self-healing concrete**

Özbay B., Erşan Y. Ç.
6th Eurasia Waste Management Symposium, 24 - 26 October 2022, vol.1, pp.614-622, (Full Text)

III. **Pre-treatment procedure for effective bioleaching of metals from large waste printed circuit board (WPCB) pieces**
Konakcı R., Pekcan M., Erşan Y. Ç.
6th Eurasia Waste Management Symposium, İstanbul, Turkey, 24 - 26 October 2022, vol.1, pp.68-76, (Full Text)

IV. **Biogranules Simultaneously Hydrolysing Urea and Reducing Nitrate and Their Biomineralization Performance**
Soluk M., Kardoğan B., Erşan Y. Ç.
6th Eurasia Waste Management Symposium, İstanbul, Turkey, 24 - 26 October 2022, vol.1, pp.665-672, (Full Text)

V. **Improvement of Fine Recycled Aggregates by Microbially Induced CaCO₃ Precipitation**
Arikan E., Bilici S. N., ERŞAN Y. Ç.
6th EurAsia Waste Management Symposium (EWMS), İstanbul, Turkey, 24 - 26 October 2022, pp.606-613, (Full Text)

VI. **Biogranules Simultaneously Hydrolyzing Urea and Reducing Nitrate and Their Biomineralization Performance**
Soluk M., Kardogan B., ERŞAN Y. Ç.
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VII. **Concrete compatible biogranules: a novel healing agent for bio-based self-healing concrete**
Sönmez M., Erşan Y. Ç.
International Conference on Cement-Based Materials Tailored for a Sustainable Future, İstanbul, Turkey, 27 - 29 May 2021, pp.302-310, (Full Text)

VIII. **Self-protected bacteria for healing and corrosion inhibition in concrete**
Erşan Y. Ç., Boon N., De Belie N.
1st International conference on Microbial Biotechnology in Construction Materials and Geotechnical Engineering (MBCMG2020), Nanjing, China, 6 - 07 November 2020, pp.52-53, (Summary Text)

IX. **Production of concrete compatible biogranules for self-healing concrete applications**
Sonmez M., ERŞAN Y. Ç.
7th International Conference on Concrete Repair, Concrete Solutions 2019, Cluj-Napoca, Romania, 30 September - 02 October 2019, vol.289, no.1002, (Full Text)

X. **Durability of self-healing concrete**
De Belie N., Van Belleghem B., ERŞAN Y. Ç., Van Tittelboom K.
7th International Conference on Concrete Repair, Concrete Solutions 2019, Cluj-Napoca, Romania, 30 September - 02 October 2019, vol.289, no.1003, (Full Text)

XI. **Microbial self-healing as two-step mechanism for corrosion inhibition in cracked concrete**
De Belie N., Erşan Y. Ç., Van Tittelboom K.
73rd International Conference on Innovative Materials for Sustainable Civil Engineering, Nanjing, China, 26 - 30 August 2019, pp.94, (Summary Text)

XII. **Corrosion prevention in cracked concrete by denitrifying bacterial granules**
De Belie N., Erşan Y. Ç., Van Tittelboom K.
7th International Conference on Self-Healing Materials (ICSHM 2019), Yokohama, Japan, 3 - 06 June 2019, pp.109, (Summary Text)

XIII. **Optimizing nutrient content of microbial self-healing concrete**
Erşan Y. Ç., Akın Y.
6th International Symposium on Life-Cycle Civil Engineering, IALCCE 2018, Ghent, Belgium, 28 - 31 October 2018, pp.2241-2246, (Full Text)

XIV. **Biotechnology offers more durable and sustainable cementitious composites**
ERŞAN Y. Ç.
Final Conference of RILEM TC 253-MCI on Microorganisms and Cementitious Materials Interactions, Toulouse, France, 25 - 26 June 2018, vol.2, pp.379-386, (Full Text)

XV. **Healing depth and functionality regain of non-axenic granulated culture based self-healing concrete**
Erşan Y. Ç., Palın D., Jonkers H., Boon N., De Belie N.
Final Conference of RILEM TC 253-MCI on Microorganisms and Cementitious Materials Interactions, Toulouse, France, 25 - 26 June 2018, vol.2, pp.511-520, (Full Text)

XVI. **Granules with activated compact denitrifying core (ACDC) for self-healing concrete with corrosion protection functionality**
Erşan Y. Ç., Boon N., De Belie N.
Final Conference of RILEM TC 253-MCI on Microorganisms and Cementitious Materials Interactions, Toulouse, France, 25 - 26 June 2018, vol.2, pp.475-484, (Full Text)

XVII. **Surface consolidation of natural stones by use of bio-agents and chemical consolidate**
Wang J., Fraeye D., Erşan Y. Ç., De Muynck W., Boon N., De B. N.
14th International Conference on Durability of Building Materials and Components, Ghent, Belgium, 29 - 31 May 2017, (Full Text)

XVIII. **Non Axenic NO3 Reducing Culture Supersedes Axenic Cultures in Development of Microbial Self Healing Concrete**
Erşan Y. Ç., De Belıe N., Boon N.
E-MRS Fall Meeting 2015, Warszawa, Poland, 15 - 18 September 2015, (Summary Text)

XIX. **Mechanical characteristics of the calcite precipitated in cracks of self-healing concrete studied by the indentation technique**
Gruyaert E., Louis G., Betrancourt D., ERŞAN Y. Ç., Lors C., Damidot D., De Belie N.
E-MRS 2015 Fall meeting, Warszawa, Poland, 15 - 18 September 2015, (Summary Text)

XX. **Microbial self healing concrete denitrification as an enhanced and environment friendly approach**
Erşan Y. Ç., Boon N., De Belıe N.
5th International Conference on Self-Healing Materials, North-Carolina, United States Of America, 22 - 24 June 2015, (Summary Text)

XXI. **A rapjd and repeatable method for est ablishing the water permeability of cracked mortar specimens**
Palin D., Ersan Y. Ç., Wiktor V., De Belie N., Jonkers H.
2015 fib Symposium: Concrete - Innovation and Design, Copenhagen, Denmark, 18 - 20 May 2015, pp.333-334, (Full Text)

XXII. **Ureolysis and denitrification based microbial strategies for self-healing concrete**
Ersan Y. Ç., Wang J., Boon N., De Belie N.
5th International Conference on Concrete Repair, Belfast, United Kingdom, 1 - 03 September 2014, pp.59-64, (Full Text)

XXIII. **Aerobik Anoksik Periyot Sıralama Farkının Ardışık Kesikli Reaktörlerde Granül Üretimine ve Azot KOİ Arıtım Verimine Etkisi**
Erşan Y. Ç., Erguder T. H.
ÇEVKOS VII, İstanbul, Turkey, 22 - 23 November 2012, (Summary Text)

XXIV. **Effect of Seed Sludge Type on Aerobic Granulation and Treatment Efficiency of Granules**
Erşan Y. Ç., Erguder T. H.
International Conference on Environmental Science and Technology, Texas, United States Of America, 25 - 29 June 2012, (Full Text)

Funded Projects

De Belıe N., De Graeve I., Project Supported by Private Organizations in Other Countries, Impact of Self-Healing Engineered Materials on Steel Corrosion in Reinforced Concrete, 2014 - 2018
De Belie N., Schmidt A., FP7 Project, Training Network for Self Healing Materials from Concepts to Market, 2012 - 2016
Bayramoğlu T. H., TUBITAK Project, The Investigation of Aerobic Granulation and Its Use For Nitrogen Removal in Sequencing Batch Reactors, 2011 - 2012

Bayramoğlu T. H., Project Supported by Higher Education Institutions, Investigation of Biological Nitrogen Removal with Granules, 2010 - 2011

Metrics

Publication: 48
Citation (WoS): 641
Citation (Scopus): 805
H-Index (WoS): 11
H-Index (Scopus): 11

Congress and Symposium Activities

First International Conference on Microbial Biotechnology in Construction Materials and Geotechnical Engineering, Invited Speaker, Nanjing, China, 2020
Final Conference of RILEM TC 253-MCI on Microorganisms and Cementitious Materials Interactions, Invited Speaker, Toulouse, France, 2018