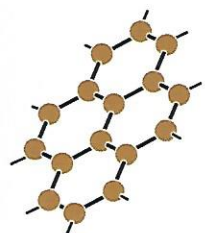


RIGA TECHNICAL UNIVERSITY
60th International Scientific Conference
MATERIALS SCIENCE AND APPLIED CHEMISTRY



MSAC 2019

OCTOBER 24, 2019



Materials Science and Applied Chemistry 2019

PROGRAMME AND ABSTRACT BOOK

**Riga, Latvia
24 October, 2019**

<http://msac.rtu.lv/>

MATERIALS SCIENCE AND APPLIED CHEMISTRY

⌚ Thursday,
October 24

📍 3/7 P. Valdena Street,
Room 272; 445; 337

Riga Technical University
60th International
Scientific Conference

- 15.15–15.30 Amorphous calcium phosphate biomaterials for bone regeneration
Jana Vecstaudža, Riga Technical University, Latvia
- 15.30–15.45 From local to general reactogenicity of biphasic calcium phosphate bioceramics after implantation in osteoporotic bone
Aleksandrs Grišulonoks, Riga Stradins University, Latvia
- 15.45–16.00 The histomorphometry of rabbits bone tissue with experimental osteoporosis after implantation of biphasic calcium phosphate materials
Vladislavs Ananjevs, Riga Stradins University, Latvia

SESSION II ROOM 445

- 9.30–10.10 Fluorescent nucleoside analogues with new properties for biophysics
Asoc. prof. Byron W. Purse, San Diego State University, USA
- 10.15–10.30 New antioxidants containing 1,3-dioxane-4,6-dione moiety
Inese Mierīņa, Riga Technical University, Latvia
- 10.30–10.45 Dithiafulvalene and tetrathiafulvalene donor group containing dyes for organic solar cell application
Armands Rudušs, Riga Technical University, Latvia
- 10.45–11.00 Purine-Azole conjugates as fluorescent materials
Armands Sebris, Riga Technical University, Latvia

Purine-Azole Conjugates as Fluorescent Materials

Armands Sebris, Kaspars Traskovskis, Irina Novosjolova, Māris Turks

Faculty of Materials Science and Applied Chemistry, Riga Technical University, Latvia
e-mail: armands.sebris_1@rtu.lv

Recently we reported the synthesis, photophysical properties and potential applications of variously substituted 9-alkylpurine derivatives.^{1,2} Here we report the synthesis of 2/6-(1,2,3-triazolyl), 2-imidazolyl, 2-(1,2,4-triazolyl), 2-tetrazolyl and 6-carbazolyl substituted purine derivatives (Figure 1). *N*(9) position contains a trityl moiety, which enhances amorphous properties³ or a carbazole moiety, which increase hole transfer capabilities. Carbazole moiety also acts as a strong electron donating group, other azoles act as electron withdrawing groups. Target compounds were obtained in 11–54% overall yields. Their fluorescence was studied and the quantum yields in DCM solution reached up to 91% and up to 58% in the films.

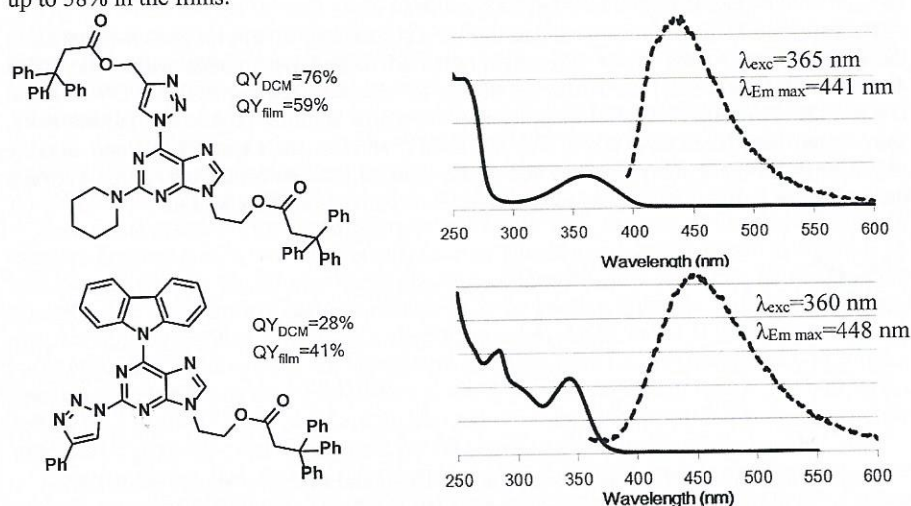


Figure 1. Representative target compounds and their absorption-emission spectra in DCM solution (solid lines - absorption spectra, dashed lines - emission spectra).

Acknowledgements

This work is supported by the ERDF 1.1.1.1 activity project Nr. 1.1.1.1/16/A/131 "Design and Investigation of Light Emitting and Solution Processable Organic Molecular Glasses" and Riga Technical University doctoral grant Nr. DOK. MLKF/18.

References

1. Kovaļovs, A.; Novosjolova, I.; Bizdēna, Ē.; Bižāne, I.; Skardziute, L.; Kazlauskas, K.; Jursenas, S.; Turks, M. *Tetrahedron Lett.* **2013**, *54*, 850.
2. Šišulins, A.; Bucevičius, J.; Tseng, Y.-T.; Novosjolova, I.; Traskovskis, K.; Bizdēna, Ē.; Chang, H.-T.; Tumkevičius, S.; Turks, M. *Beilstein J. Org. Chem.* **2019**, *15*, 474–489.
3. Traskovskis, K.; Mihailovs, I.; Tokmakovs, A.; Kokars, V.; Rutkis, M. *Proceedings of SPIE*, **2012**, 8434: Nonlinear Optics and Applications VI, 1.