

Publications

Kreuzenbeck NB, Seibel E, Schwitalla JW, Fricke J, Conlon BH, Schmidt S, Hammerbacher A, Köllner TG, Poulsen M, Hoffmeister D, Beemelmans C (2022) Comparative genomic and metabolomic analysis of *Termitomyces* species provides insights into the terpenome of the fungal cultivar and the characteristic odor of the fungus garden of *Macrotermes natalensis* termites. *mSystems* 7(1), e0121421.

Lee SR, Schalk F, Schwitalla JW, Guo H, Yu JS, Song M, Jung WH, de Beer ZW, Beemelmans C, Kim KH (2022) GNPS*-guided discovery of madurastatins A1, A2, E1, F, and G1, siderophores from the termite-associated *Actinomadura* sp. RB99. (GNPS=global natural product social molecular networking platform.) *Chemistry* 28(36), e202200612.

Conlon BH, Gostinčar C, Fricke J, Kreuzenbeck NB, Daniel JM, Schlosser MSL, Peereboom N, Aanen DK, de Beer ZW, Beemelmans C, Gunde-Cimerman N, Poulsen M (2021) Genome reduction and relaxed selection is associated with the transition to symbiosis in the basidiomycete genus *Podaxis*. *iScience* 24(6), 102680.

Lee SR, Guo H, Yu JS, Park M, Dahse HM, Jung WH, Beemelmans C, Kim KH (2021) Revised structural assignment of azalomycins based on genomic and chemical analysis. *Org Chem Front* 8, 4791-4798.

Murphy R, Benndorf R, De Beer ZW, Vollmers J, Kaster AK, Beemelmans C, Poulsen M (2021) Comparative genomics reveals sanitary and catabolic capabilities of *Actinobacteria* within the fungus-farming termite symbiosis. *mSphere* 6(2), e01233-20.

Schalk F, Gostinčar C, Kreuzenbeck NB, Conlon BH, Sommerwerk E, Rabe P, Burkhardt I, Krüger T, Kniemeyer O, Brakhage AA, Gunde-Cimerman N, de Beer ZW, Dickschat JS, Poulsen M, Beemelmans C (2021) The termite fungal cultivar *Termitomyces* combines diverse enzymes and oxidative reactions for plant biomass conversion. *mBio* 12(3), e0355120.

Schorn MA, Verhoeven S, Ridder L, Huber F, Acharya DD, Aksenov AA, Aleti G, Moghaddam JA, Aron AT, Aziz S, Bauermeister A, Bauman KD, Baunach M, Beemelmans C, Beman JM, Berlanga-Clavero MV, Blacutt AA, Bode HB, Boullie A, Brejnrod A, Bugni TS, Calteau A, Cao L, Carrión VJ, Castelo-Branco R, Chanana S, Chase AB, Chevrette MG, Costa-Lotufo LV, Crawford JM, Currie CR, Cuypers B, Dang T, de Rond T, Demko AM, Dittmann E, Du C, Drozd C, Dujardin JC, Dutton RJ, Edlund A, Fewer DP, Garg N, Gauglitz JM, Gentry EC, Gerwick L, Glukhov E, Gross H, Gugger M, Guillén Matus DG, Helfrich EJN, Hempel BF, Hur JS, Iorio M, Jensen PR, Kang KB, Kaysser L, Kelleher NL, Kim CS, Kim KH, Koester I, König GM, Leao T, Lee SR, Lee YY, Li X, Little JC, Maloney KN, Männle D, Martin HC, McAvoy AC, Metcalf WW, Mohimani H, Molina-Santiago C, Moore BS, Mullowney MW, Muskat M, Nothias LF, O'Neill EC, Parkinson EI, Petras D, Piel J, Pierce EC, Pires K, Reher R, Romero D, Roper MC, Rust M, Saad H, Saenz C, Sanchez LM, Sørensen SJ, Sosio M, Süßmuth RD, Sweeney D, Tahlan K, Thomson RJ, Tobias NJ, Trindade-Silva AE, van Wezel GP, Wang M, Weldon KC, Zhang F, Ziemert N, Duncan KR, Crüsemann M, Rogers S, Dorrestein PC, Medema MH, van der Hooft JJJ (2021) A community resource for paired genomic and metabolomic data mining. *Nat Chem Biol* 17(4), 363-368.

Um S, Guo H, Thiengmag S, Benndorf R, Murphy R, Rischer M, Braga D, Poulsen M, de Beer ZW, Lackner G, Beemelmans C (2021) Comparative genomic and metabolic analysis of *Streptomyces* sp. RB110 morphotypes illuminates genomic rearrangements and formation of a new 46-membered antimicrobial macrolide. *ACS Chem Biol* 16(8), 1482-1492.

Um S, Seibel E, Schalk F, Balluf S, Beemelmans C (2021) Targeted isolation of saalfelduracin B-D from *Amycolatopsis saalfeldensis* using LC-MS/MS-based molecular networking. *J Nat Prod* 84(4), 1002-1011.

Vidkjær NH, Schmidt S, Hu H, Bodawatta KH, Beemelmans C, Poulsen M (2021) Species- and caste-specific gut metabolomes in fungus-farming termites. *Metabolites* 11(2), 839.

Benndorf R, Martin K, Kufner M, de Beer ZW, Vollmers J, Kaster AK, Beemelmans C (2020) *Actinomadura rubteroloni* sp. nov. and *Actinomadura macrotermis* sp. nov., isolated from the gut of the fungus growing-termite *Macrotermes natalensis*. *Int J Syst Evol Microbiol* 70(10), 5255-5262.

Benndorf R, Schwitalla JW, Martin K, de Beer ZW, Vollmers J, Kaster AK, Poulsen M, Beemelmans C (2020) *Nocardia macrotermis* sp. nov. and *Nocardia aurantia* sp. nov., isolated from the gut of the fungus-growing termite *Macrotermes natalensis*. *Int J Syst Evol Microbiol* 70(10), 5226-5234.

Guo H, Schwitalla JW, Benndorf R, Baunach M, Steinbeck C, Görls H, de Beer ZW, Regestein L, Beemelmans C (2020) Gene cluster activation in a bacterial symbiont leads to halogenated angucyclic maduralactomycins and spirocyclic actinospirols. *Org Lett* 22(7), 2634-2638.

Hubert P, Seibel E, Beemelmans C, Campagne JM, de Figueiredo RM (2020) Stereoselective construction of (E,Z)-1,3-dienes and its application in natural product synthesis. *Adv Synth Catal* 362(24), 5532-5575. (Review)

Lee SR, Kreuzenbeck NB, Jang M, Oh T, Ko SK, Ahn JS, Beemelmans C, Kim KH (2020) Xyloneside A: A new glycosylated incisterol derivative from *Xylaria* sp. FB. *ChemBioChem* 21(16), 2253-2258.

Lee SR, Lee D, Park M, Lee JC, Park HJ, Kang KS, Kim CE, Beemelmans C, Kim KH (2020) Absolute configuration and corrected NMR assignment of 17-hydroxycyclooctatin, a fused 5-8-5 tricyclic diterpene. *J Nat Prod* 83(2), 354-361.

Rak Lee S, Schalk F, Schwitalla JW, Benndorf R, Vollmers J, Kaster AK, de Beer ZW, Park M, Ahn MJ, Jung WH, Beemelmans C, Kim KH (2020) Polyhalogenation of isoflavonoids by the termite-associated *Actinomadura* sp. RB99. *J Nat Prod* 83(10), 3102-3110.

Schalk F, Um S, Guo H, Kreuzenbeck NB, Görls H, de Beer ZW, Beemelmans C (2020) Targeted discovery of tetrapeptides and cyclic polyketide-peptide hybrids from a fungal antagonist of farming termites. *ChemBioChem* 21(20), 2991-2996.

Schwitalla JW, Benndorf R, Martin K, Vollmers J, Kaster AK, de Beer ZW, Poulsen M, Beemelmans C (2020) *Streptomyces smaragdinus* sp. nov. isolated from the gut of fungus growing-termite *Macrotermes natalensis*. *Int J Syst Evol Microbiol* 70(11), 5806-5811.

Burkhardt I, Kreuzenbeck N, Beemelmans C, Dickschat J (2019) Mechanistic characterization of three sesquiterpene synthases from the termite-associated fungus *Termitomyces*. *Org Biol Chem* 17(13), 3348-3355.

Conlon BH, Aanen DK, Beemelmans C, de Beer ZW, De Fine Licht HH, Gunde-Cimerman N, Schiøtt M, Poulsen M (2019) Reviewing the taxonomy of podaxis: Opportunities for understanding extreme fungal lifestyles. *Fungal Biol* 123(3), 183-187. (Review)

Guo H, Roman D, Beemelmans C (2019) Tropolone natural products. *Nat Prod Rep* 36(8), 1137-1155. (Review)

Klassen JL, Lee SR, Poulsen M, Beemelmans C*, Kim KH* (2019) Efomycins K and L from a termite-associated *Streptomyces* sp. M56 and their putative biosynthetic origin. *Front Microbiol* 10, 1739.

Lee SR, Küfner M, Park M, Jung WH, Choi SU, Beemelmans C, Kim KH (2019) Beauvetetraones A-C, phomaligadione-derived polyketide dimers from the entomopathogenic fungus, *Beauveria bassiana*. *Org Chem Front* 6, 162-166.

Otani S, Challinor V, Kreuzenbeck N, Kildgaard S, Christensen S, Larsen L, Aanen D, Rasmussen SA, Beemelmans C, Poulsen M (2019) Disease-free monoculture farming by fungus-growing termites. *Sci Rep* 9(1), 8819.

Yoon SY, Lee SR, Hwang JY, Benndorf R, Beemelmans C, Chung SJ, Kim KH (2019) Fridamycin A, a microbial natural product, stimulates glucose uptake without inducing adipogenesis. *Nutrients* 11(4), 765.

Benndorf R, Guo H, Sommerwerk E, Weigel C, Garcia-Altares M, Martin K, Hu H, Kuefner M, de Beer ZW, Poulsen M, Beemelmans C (2018) Natural products from Actinobacteria associated with fungus-growing termites. *Antibiotics* 7(3), 83.

Guo H, Schmidt A, Stephan P, Raguž L, Braga D, Kaiser M, Dahse HM, Weigel C, Lackner G, Beemelmans C (2018) Precursor-directed diversification of cyclic tetrapeptidic pseudoxylallemycins. *ChemBioChem* 19(21), 2307-2311.

Lee RS, Lee D, Yu JS, Benndorf R, Lee S, Lee DS, Huh J, de Beer ZW, Kim YH, Beemelmans C, Kang KS, Kim KH (2018) Natalenamides A-C, cyclic tripeptides from the termite-associated *Actinomadura* sp. RB99. *Molecules* 23(11), 3003.

Lee SR, Song JH, Song JH, Ko HJ, Baek JY, Trinh TA, Beemelmans C, Yamabe N, Kim KH (2018) Chemical identification of isoflavonoids from a termite-associated *Streptomyces* sp. RB1 and their neuroprotective effects in murine hippocampal HT22 cell line. *Int J Mol Sci* 19(9), 2640.

Park YJ, Lee SR, Kim DM, Yu JS, Beemelmans C, Chung KH, Kim KH (2018) The inhibitory effects of cyclodepsipeptides from the entomopathogenic fungus *Beauveria bassiana* on myofibroblast differentiation in A549 alveolar epithelial cells. *Molecules* 23(10), 2568.

Beemelmans C, Ramadhar TR, Kim KH, Klassen JL, Cao S, Wyche TP, Hou Y, Poulsen M, Bugni TS, Currie CR, Clardy J (2017) Macrotermycins A-D, Glycosylated Macrolactams from a Termite-Associated *Amycolatopsis* sp. M39. *Org Lett* 19(5), 1000-1003.

Benndorf R, Lechnitz D, Rischer M, Beemelmans C (2017) Wie sich Bakterien schützen. *Nachrichten aus der Chemie* 65(1), 21-25. (Review)

Guo H, Benndorf R, Lechnitz D, Klassen JL, Vollmers J, Görls H, Steinacker M, Weigel C, Dahse HM, Kaster AK, de Beer ZW, Poulsen M, Beemelmans C (2017) Isolation, biosynthesis and chemical modifications of rubterolones A-F, rare tropolone alkaloids from *Actinomadura* sp. 5-2. *Chem Eur J* 23(39), 9338-9345.

Wyche TP, Ruzzini AC, Beemelmans C, Kim KH, Klassen JL, Cao S, Poulsen M, Bugni TS,

Currie CR, Clardy J (2017) Linear Peptides Are the Major Products of a Biosynthetic Pathway That Encodes for Cyclic Depsipeptides. *Org Lett* 19(7), 1772-1775.

Beemelmans C, Guo H, Rischer M, Poulsen M (2016) Natural products from microbes associated with insects. *Beilstein J Org Chem* 12, 314-327.

Guo H, Kreuzenbeck NB, Otani S, Garcia-Altare M, Dahse HM, Weigel C, Aanen DK, Hertweck C, Poulsen M, Beemelmans C (2016) Pseudoxylallemycins A-F, cyclic tetrapeptides with rare allenyl modifications isolated from *Pseudoxylaria* sp. X802: A competitor of fungus-growing termite cultivars. *Org Lett* 18, 3338-3341.

Kang HR, Lee D, Benndorf R, Jung WH, Beemelmans C, Kang KS, Kim KH (2016) Termisoflavones A-C, Isoflavonoid Glycosides from Termite-Associated *Streptomyces* sp. RB1. *J Nat Prod* 79(12), 3072-3078.

Lee SR, Beemelmans C, Tsumac LMM, Clardy J, Cao S, Kim KH (2016) A New Diketopiperazine, Cyclo(D-trans-Hyp-L-Leu) from a Kenyan Bacterium *Bacillus licheniformis* LB 8CT *Nat Prod Commun* 4(11), 461-463.

Rischer M, Neumann R, Domey S (2016) DNA Extraction from Fungi Environmental Field Samples Promega Corporation Web site

Kim KH, Beemelmans C, Clardy J, Cao S (2015) A new antibacterial octaketide and cytotoxic phenylethanoid glycosides from *Pogostemon cablin* (Blanco) Benth *Bioorg. Med. Chem. Lett.* 14(25), 2834-2836.

Kim KH, Beemelmans C, Murillo C, Guillén A, Umaña L, Tamayo-Castillo G., Kim SN, Clardy J, Cao, S (2014) Naphthalenones and isocoumarins from a Costa Rican fungus Xylariaceae sp. CR1546C *Journal of Chemical Research* 38(12), 722-725.

Kim KH, Ramadhar TR, Beemelmans C, Cao S, Poulsen M, Currie CR, Clardy J (2014) Natalamycin A, an ansamycin from a termite-associated *Streptomyces* sp *Chem. Sci.* 5(11), 4333-4338.

Ramadhar TR, Beemelmans C, Currie CR, Clardy J (2014) Bacterial symbionts in agricultural systems provide a strategic source for antibiotic discovery. *J Antibiot (Tokyo)* 67(1), 53-58.

* equal contribution #corresponding author