**Appendix Table S1** –Published research on *Mycetomoellerius zeteki* and *M.*cf.*zeteki.* In some studies, it was assumed that the smaller black species was *M. zeteki* *sensu stricto* (e.g., Adams et al., 2012a, 2012b) whereas in others uncertainty was indicated by referring to the smaller, darker species as *M.*cf.*zeteki*. Vouchers that are not represented by a physical ant specimens are indicated by (\*) for GenBank depositions, (†) for fungal-cultivar GenBank deposition, and (‡) for other symbiont GenBank depositions.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Published Name** | **Corrected Name** | **Material Included in this Study** | **Voucher Location** | **(Citation)**  **Journal** | **Corresponding Author** |
| ***T. zeteki & T. cf. zeteki*  2** | *M*. *mikromelanos* sp. nov.& *M. zeteki* | Yes | United States National Museum of Natural History | (Adams et al., 2012) Biochem Syst Ecol | Rachelle M.M. Adams |
| ***T. zeteki & T. cf. zeteki*** | *M*. *mikromelanos* sp. nov.& *M. zeteki* | Yes | United States National Museum of Natural History | (Adams et al., 2012) Eco Ento | Rachelle M.M. Adams |
| ***T. zeteki & T. cf. zeteki*** | *M*. *mikromelanos* sp. nov.& *M. zeteki* | Yes | United States National Museum of Natural History; Smithsonian Tropical Research Institute, Panama | (Adams et al., 2013) PNAS | Rachelle M.M. Adams and David R. Nash |
| ***T. zeteki*** | - | No | - | (Andersen et al., 2013) Mol Ecol | Sandra Breum Andersen and Jacobus J. Boomsma |
| ***T. cf. zeteki*** | - | No | Coleccion Nacional de Referencia Museo de Invertebrados, Universidad de Panama | (Armitage et al., 2012) Evolution | Sophie A. O. Armitage |
| ***T. cf. zeteki*** | - | No | - | (Baer & Boomsma, 2004) Behav Ecol | Boris Baer |
| ***T. cf. zeteki*** | - | No | - | (Baer et al., 2009) Behav Ecol | Boris Baer |
| ***T. zeteki*** | - | No | - | (Birnbaum & Gerardo, 2016) Am Nat | Nicole M. Gerardo |
| ***T. zeteki*** | - | No | - | (Boya et al., 2017) Sci Reports | Marcelino Gutérrez |
| ***T. zeteki*** | - | No | Museu de Zoologia da Universidadede São Paulo | (Brandão & Mayhé-Nunes, 2007) Mem Am Entomol Inst | C. Roberto F. Brandão and Antonio J. Mayhé-Nunes |
| ***T. zeteki*** | - | No | ‡ | (Cafaro & Currie, 2005) Can J Microbiol | Matias J. Cafaro |
| ***T. zeteki & T. cf. zeteki*** | - | No | \* | (Cafaro et al., 2011) Proc R Soc B | Cameron R. Currie |
| ***T. cf. zeteki*** | - | No | - | (Currie et al., 1999) PNAS | Cameron R. Currie |
| ***T. cf. zeteki*** | - | No | - | (Cameron et al., 2003) Science | Cameron R. Currie |
| ***T. zeteki*** | - | No | United States National Museum of Natural History | (Cameron et al., 2006) Science | Cameron R. Currie |
| ***T. zeteki*** | - | No | \* | (De Fine Licht & Boomsma, 2014) BMC Evo Bio | Henrik H. De Fine Licht |
| ***T. zeteki*** | - | No | - | (De Fine Licht et al., 2014) Nat Commun | Henrik H. De Fine Licht |
| ***T. cf. zeteki*** | *M. mikromelanos* sp. nov. | No | Natural History Museum of Denmark, Copenhagen | (Den Boer et al., 2010) Science | Jacobus Boomsma |
| ***T. cf. zeteki*** | - | No | Zoological Museum of the University of Copenhagen | (Dijkstra & Boomsma, 2008) Oikos | Michiel Dijkstra and Jacobus Boomsma |
| ***T. zeteki*** | *M. mikromelanos* sp. nov. | No | - | (Donoso, 2014)Ecography | David Donoso |
| ***T. zeteki*** | - | No | Coleccion Nacional de Referencia Museo de Invertebrados, Universidad de Panama | (Fernández-Marín et al., 2015) Proc R Soc B | Hermogenes Fernandez-Marin and Jacobus Boomsma |
| ***T. zeteki*** | - | No | Coleccion Nacional de Referencia Museo de Invertebrados, Universidad de Panama | (Fernández-Marín et al., 2013) Am Nat | Hermogenes Fernández-Marín and William Wcislo |
| ***T. zeteki*** | - | No | Zoological Museum, University of Puerto Rico; Smithsonian Tropical Research Institute, Panama | (Fernández-Marín et al., 2004) Biol J Linn Soc Lond | Hermogenes Fernández-Marín and William Wcislo |
| ***T. cf. zeteki*** | - | No | United States National Museum of Natural History; \* | (Fernández-Marín et al., 2006) Proc R Soc B | William Wcislo |
| ***T. zeteki*** | - | No | Smithsonian Tropical Research Institute, Panama | (Fernández-Marín et al., 2009) Proc R Soc B | Hermogenes Fernández-Marín and William Wcislo |
| ***T. zeteki*** | - | No | - | (Fjerdingstad & Crozier, 2006) Am Nat | Else J. Fjerdingstad and Ross H. Crozier |
| ***T. zeteki & T. cf. zeteki*** | - | No | - | (Frost et al., 2010) Mol Ecol | Crystal Frost |
| ***T. cf. zeteki*** | - | No | - | (Hughes et al., 2008) Evolution | William O.H. Hughes |
| ***T. zeteki*** | - | ! | United States National Museum of Natural History | (Ješovnik et al., 2016) PloS ONE | Ana Jesovnik and Ted R. Schultz |
| ***T. zeteki*** | - |  | United States National Museum of Natural History; \* | (Ješovnik et al., 2017) Syst Ent | Ana Jesovnik and Ted R. Schultz |
| ***T. zeteki*** | - | No | - | (Kaspari et al., 2012) Ecosphere | Mike Kaspari |
| ***T. zeteki & T. cf. zeteki*** | - | No | † | (Kooij et al., 2015) J Evo Bio | Pepijn Kooij & Dr. Jacobus Boomsma |
| ***T. zeteki & T. cf. zeteki*** | - | ! | ‡ | (Liberti et al., 2015) Mol Ecol | Rachelle M.M. Adams and Jacobus Boomsma |
| ***T. cf. zeteki*** | - | No | - | (Little & Currie, 2009) BMC Evo Bio | Cameron R. Currie |
| ***T. cf. zeteki*** | - | No | - | (Little et al., 2003) Naturissenschaften | Ainslie E. F. Little |
| ***T. cf. zeteki*** | - | No | - | (ALittle et al., 2006) Biol Lett | Ainslie E. F. Little |
| ***T. zeteki*** | - | No | Instituto Nacional de Biodiversidad, Costa Rica; Longino researach collection | (Longino & Colwell, 2011) Ecosphere | Jack Longino |
| ***T. zeteki*** | - | No | United States National Museum of Natural History | (Mangone & Currie, 2007) Can Entomol | Cameron R. Currie |
| ***T. zeteki*** | - | No | \* | (Mueller et al., 2008) Evolution | Ulrich Mueller, Debadutta Dash, Christian Rabeling, and Andre Rodrigues |
| ***T. zeteki*** | - | Yes | \* , National Museum of Natural History; University of Copenhagen | (Nygaard et al., 2016) Nature Comm | Sanne Nygaard, Guojie Zhang, and Jacobus Boomsma |
| ***T. cf. zeteki*** | - | No | Coleccion Nacional de Referencia Museo de Invertebrados, Universidad de Panama | (Pérez-Ortega et al., 2010) Ins Soc | Hermogenes Fernandez-Marin and William Wcislo |
| ***T. zeteki & T. cf. zeteki*** | - | No | - | (Poulsen & Currie, 2010) PloS ONE | Michael Poulsen |
| ***T. zeteki*** | - | No | ‡ | (Poulsen et al., 2007) PloS ONE | Michael Poulsen |
| ***T. zeteki*** | - | No | - | (Sapountzis et al., 2018) eLife | Panagiotis Sapountzis and Jacobus J Boomsma |
| ***T. cf. zeteki*** | - | No | United States National Museum of Natural History | (Schultz & Brady, 2008) PNAS | Ted Schultz |
| ***T. zeteki*** | - | No | † | (Scott et al., 2009) Mol Ecol Resour | Ulrich Mueller |
| ***T. zeteki & T. cf. zeteki 3*** | - | No | - | (Seal, 2009) Insect Soc | John Seal |
| ***T. zeteki*** | - | No | Coleccion Nacional de Referencia Museo de Invertebrados, Universidad de Panama; Smithsonian Tropical Research Institute, Panama | (Seid et al., 2011) Brain Behav Evo | Wiliam Wcisclo |
| ***T. cf. zeteki*** | - | No | † | (Semenova et al., 2011) BMC Microbiology | Morten Schiøtt |
| ***T. zeteki*** | - | No | ‡ | (Sen et al., 2009) PNAS | Ruchira Sen and Ulrich Mueller |
| ***T. zeteki*** | - | No | - | (Shik et al., 2014) Am Nat | Johnathan Shik |
| ***T. zeteki*** | Likely *M. atlanticus* | No | Museu de Zoologia da Universidadede São Paulo | (Silva et al., 2007) Forest Eco Manage | Rogério Silva |
| ***M. sp. nov. & M. zeteki*** | *M*. *mikromelanos* sp. nov.& *M. zeteki* | Yes | Museu de Zoologia da Universidade de São Paulo; National Museum of Natural History | (Solomon et al., 2019) Syst Ent | Scott E Solomon, Christian Rabeling, Ted Schultz |
| ***T. zeteki*** | - | No | ‡ | (Taerum et al., 2007) Proc R Soc B | Cameron R. Currie |
| ***T. cf. zeteki*** | - | No | Museo de Entomología de la Universidad del Valle | (Valdés-Rodríguez et al., 2014) Rev Biol Trop | Sephany Valdes-Rodriguez, Patricia Chacon de Ulloa, and Inge Armbrecht |
| ***T. zeteki*** | - | No | Museo Entomológico Universidad Nacional Agronomía Bogotá | (Vergara-Navarro & Serna, 2013) Agron Colombian | Francisco Serna |
| ***T. cf. zeteki*** | - | No | United States National Museum of Natural History | (Villesen et al., 2002) Proc R Soc B | Jacobus Boomsma |
| ***T. cf. zeteki*** | - | No | United States National Museum of Natural History | (Villesen & Boomsma, 2003) Behav Ecol Sociobiol | Jacobus Boomsma |
| ***T. cf. zeteki*** | - | No | - | (Villesen et al., 2002) Mol Ecol Notes | Jacobus Boomsma |
| ***T. cf. zeteki*** | - | No | ‡ | (Wallace et al., 2014)Microbiol | Adrián Pinto Tomás |
| ***T. zeteki*** | *M. zeteki* | Yes | United States National Museum of Natural History | (Weber, 1940) Revista de Ento | N/A |
| ***T. zeteki*** | - | No | United States National Museum of Natural History; \* | (Wetterer et al., 1998) Mol Phylo Evo | James K Wetterer |
| ***T. zeteki*** | - | No | - | (Zhang et al., 2007) ISME J | Cameron R. Currie |

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