

Marcellin Cokola Cuma

Personal information



Marcellin C. Cokola is an entomologist and agricultural scientist specializing in sustainable pest management and agroecology in smallholder farming systems, particularly in the Democratic Republic of Congo (DRC). Dr Cokola earned his PhD in Agricultural Sciences and Biological Engineering (Agricultural Entomology) from the University of Liège, Gembloux Agro-Bio Tech in Belgium, and he is currently a Lecturer and Researcher at the Université Evangélique en Afrique (UEA/Bukavu), Eastern DRC. His doctoral research, conducted at the TERRA Research Centre, focused on the ecology and biological control of *Spodoptera frugiperda* (the fall armyworm) in South Kivu, eastern DRC. His thesis provided the first data on the fall armyworm invasion in the DRC. It explored the ecology of the pest and the use of native entomopathogenic fungi, predators, and parasitoids for biological control, contributing to integrated pest management strategies in the country. Dr Cokola has presented his findings at major international conferences, including the 75th International Symposium on Crop Protection in Ghent and the International Congress on Invertebrate Pathology (SIP) in Vienna. He is also actively involved in international research projects aimed at selecting biological control agents (BCAs) for integration into pest control strategies. The aim is to reduce reliance on chemical pesticides and encourage the adoption of sustainable, environmentally friendly pest management practices. Together with his fieldwork, his research contributes to developing innovative solutions that enhance food security and protect natural resources in various agricultural landscapes in the Democratic Republic of Congo.

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Marital status: Married

Sex Male | Date of birth 14/07/1992 | Nationality Democratic Republic of Congo

Experience

November 2025 – present: **Head of Laboratory of Entomology and Arthropod Pathology (LEAP) at the Université Evangélique en Afrique (UEA/Bukavu)**

January 2025 – present: **Scientific Collaborator, University of Liege, Gembloux Agro-Bio Tech**
 Developing research project proposals and designs.

March 2025 – present: **Assistant Professor, Faculty of Agriculture and Environmental Sciences, Université Evangélique en Afrique, UEA Bukavu, South Kivu, DR Congo.**
 Agricultural Education and Scientific Research

February 2016 – February 2025: **Junior Lecturer and Researcher, Université Evangélique en Afrique, UEA Bukavu, South Kivu, DR Congo.**
 Agricultural Education and Scientific Research

June 2023 : **Visiting Scientist at Centre of Agriculture and Bioscience International CABI, Delémont, Switzerland**
 Morphological identification and mass rearing of fall armyworm insect parasitoids.

August – September 2022: **Volunteer Land O' Lakes Venture 37, Feed the Future DRC**
 Management of Fall Armyworm in DRC (MFAW): Validation of safe and cost-

effective integrated pest management (IPM) technologies suitable for smallholder maize producers against fall armyworm.

March – July 2021: Consultant at International Centre for Tropical Agriculture CIAT Harvest-Plus

Monitoring and development of alternative methods to conventional chemical insecticides against fall armyworm in Kabare and Ruzizi plain in South Kivu.

December 2017– August 2018: Consultant for the USAID Food Security Project (FSP/Enyanya)

MercyCorps Program in partnership with the Université Evangélique en Afrique (UEA/Bukavu): Designing resilient agricultural systems for climate hazards.

Education

March 2020 – September 2024: PhD in Agricultural Sciences and Biological Engineering

University of Liege, Gembloux Agro-Bio Tech, Gembloux, Belgium
Laboratory of Functional and Evolutionary Entomology

September 2018 – September 2019: Master of Science in integrated production and preservation of natural resources

University of Liege, Gembloux Agro-Bio Tech, Gembloux, Belgium

October 2010 – July 2015: Bachelor of Studies (Bac+5) in Agriculture and Environmental Sciences

Université Evangélique en Afrique, UEA/Bukavu, South Kivu, DR Congo

Language skills

- French : Mother tongue
- English : Good
- Swahili : Very good

Involvement in research and development projects

2025 – 2027	<ul style="list-style-type: none"> ▪ Project: BioFungi: Biopesticides based on entomopathogenic fungi for the management of fall armyworm and other pests in South Kivu, eastern DR Congo ▪ Role: Principal Investigator ▪ Funder: Academy of Research and Higher Education (ARES), Belgium
2025 – 2030	<ul style="list-style-type: none"> ▪ Project: Development of larvicidal and repellent bio-insecticides based on metal nanoparticles obtained by green and circular synthesis from plants in the Democratic Republic of Congo (NanoSECT) ▪ Role: Project collaborator ▪ Funder: Academy of Research and Higher Education (ARES), Belgium
2022 – 2027	<ul style="list-style-type: none"> ▪ Project: Circular development of biopesticides to combat the fall armyworm in Burkina Faso ▪ Role: Project collaborator ▪ Funder: Academy of Research and Higher Education (ARES), Belgium
2017 – 2022	<ul style="list-style-type: none"> ▪ Project: Food security project (FSP-Enyanya) ▪ Role: Consultant ▪ Funder: U.S. Agency for International Development (USAID)

Scientific Conferences, symposiums and workshops

- Biobased Innovation and Entrepreneurship Bootcamp, BioInnovate. 29 July-19 August 2025. International Centre of Insect Physiology and Ecology ICIPE, Nairobi.
- Francis, F., **Cokola, M.C.**, Dessauvages, K., Kouanda, N., Glacet, L., Badolo, A., & Ben Fekih, I. (05 August 2024). Fungal Entomopathogens for pest biocontrol in multitrophic approaches [Paper presentation].

International Congress on Invertebrate Pathology and Microbial Control and 56th Annual Meeting of the Society for Invertebrate Pathology, Vienna, Austria.

- Ben Fekih, I., **Cokola, M.C.**, Dessauvages, K., Kouanda, N., Glacet, L., Badolo, A., Francis, F., (21 May 2024). Biocontrol with Endophytic Entomopathogenic Fungi of the order Hypocreales. 75th International Symposium on Crop Protection, Ghent, Belgium. Oral presentation.
- **Cokola, M.C.**, Kenis, M., Noël, G., Caparros Megido, R., Durocher-Granger, L., Bisimwa, E.B., Francis, F. (21 May 2024). Fall armyworm and associated insect natural enemies in eastern DR Congo [Poster presentation]. 75th International Symposium on Crop Protection ISCP, Ghent, Belgium.
- Workshop: Arthropod-Fungal Associations: from parasites to pathogens. 13-15 May 2024. Meise Botanic Garden and Ghent University, Belgium.
- **Cokola, M.C.**, Ben Fekih, I., Caparros Megido, R., Delvigne, F., Bisimwa, E. B., & Francis, F. (26 November 2023). *Spodoptera frugiperda* (Lepidoptera : Noctuidae) à l'Est de la RD Congo : exploration des champignons entomopathogènes indigènes pour la lutte biologique [Poster presentation]. Conférence Internationale Francophone d'Entomologie CIFE, Yaoundé, Cameroun.
- **Cokola, M.C.**, Ben Fekih, I., Bisimwa, E. B., Caparros Megido, R., Delvigne, F., & Francis, F. (12 October 2023). Isolats de champignons entomopathogènes indigènes pour le contrôle de *Spodoptera frugiperda* (Lepidoptera : Noctuidae) au Sud-Kivu, Est de la République démocratique du Congo [Poster presentation]. Gembloux Agro-Bio Tech et la République Démocratique du Congo - Enjeux et perspectives d'une coopération ancrée dans l'histoire, Gembloux, Belgium.
- Madamo Malasi, F., Armel Gougbedji, **Cokola, M.C.**, Malaisse, F., Constantin Lubini, Dieudonné, M., Paul Latham, Francis, F., Caparros Megido, R., & Frederich, M. (28 September 2023). Bioécologie des chenilles d'*Imbrasia epimethea* (Drury, 1773) consommées dans la province du kwilu en République Démocratique du Congo [Poster presentation]. Colloque "Gembloux Agro-Bio tech et la RDC - enjeux et perspectives d'une coopération ancrée dans l'histoire" (Belgique) Poster, Gembloux, Belgium.
- **Cokola, M.C.**, Kenis, M., Noël, G., Caparros Megido, R., Durocher-Granger, L., Bisimwa, E.B., Francis, F., 2021. Natural enemies of the fall armyworm, *Spodoptera frugiperda* (Lepidoptera: Noctuidae) within agro ecological zones of South Kivu, Eastern DR Congo. Virtual workshop IOBC-Global International Working Group of *Ostrinia* and other maize pests (IWGO). Oral presentation.

Publications

• Published articles

- Wyckhuys, K.A.G., Akutse, K.S., Amalin, D.M., Araj, S.-E., Beltran, M.J.B., Ben Fekih, I., Calatayud, P.-A., Cicero, L., **Cokola, M.C.**, Colmenarez, Y.C., Dessauvages, K., Dubois, T., Durocher-Granger, L., Fernández-Triana, J.L., Francis, F., Haddi, K., Harrison, R.D., Haseeb, M., Iwanicki, N.S.A., Jaber, L.R., Khamis, F.M., Legaspi, J.C., Lomeli-Flores, R.J., Lyu, B., Montoya-Lerma, J., Nurkomar, I., O'Hara, J.E., Perier, J.D., Ramírez-Romero, R., Sanchez-Garcia, F.J., Robinson-Baker, A.M.S., Silveira, L.C.P., Simeon, L., Solter, L.F., Santos-Amaya, O.E., De Souza Tavares, W., Trabanino, R., Valicente, F.H., Vásquez, C., Wang, Z., Zang, L.-S., Zhang, W., Zimba, K.J., Wu, K., Gc, Y.D., 2026. Human versus machine: Can generative AI anticipate insect biological control outcomes? Computers and Electronics in Agriculture 242, 111317. <https://doi.org/10.1016/j.compag.2025.111317>
- Gakuru, P.N., **Cokola, M.C.**, Dessauvages, K., Mate Mweru, J.-P., Muhashy Habiyaemye, F., Caparros Megido, R., Francis, F., Ben Fekih, I., 2025. Dual Impact Assessments of *Beauveria bassiana* (Ascomycota: Hypocreales) Against *Brevicoryne brassicae* (Hemiptera: Aphididae). Neotrop Entomol 54, 111.

- <https://doi.org/10.1007/s13744-025-01327-w>
- Madamo, F.M., **Cokola, M.C.**, Gougbedji, A., Malaisse, F., Lubini, C., Mangunza, D., Latham, P., Frédéricich, M., Francis, F., Caparros Megido, R., 2025. Edible caterpillars and their host plants: ethnobotanical insights in Kwilu, Democratic Republic of Congo. *Journal of Ethnobiology and Ethnomedicine* 21, 33. <https://doi.org/10.1186/s13002-025-00781-5>
- Cokola, M.C.**, Noël, G., Mugumaarhahama, Y., Caparros Megido, R., Bisimwa, E.B., Francis, F., 2024. Planting date in South Kivu, eastern DR Congo: A real challenge for the sustainable management of *Spodoptera frugiperda* (Lepidoptera: Noctuidae) by smallholder farmers. *PLoS ONE* 19, e0314615. <https://doi.org/10.1371/journal.pone.0314615>
- Ndeko, A.B., Chuma, G.B., **Cokola, M.C.**, Mondo, J.M., Mugumaarhahama, Y., Bisimwa, E.B., Civava, R., Mushagalusa, G.N., 2024. Typology of smallholder maize farmers in South-Kivu, Eastern D.R. Congo: implications in improving farming practices and markets. *Discover Agriculture* 2, 47. <https://doi.org/10.1007/s44279-024-00053-y>
- Wyckhuys, K.A.G., Akutse, K.S., Amalin, D.M., Araj, S.-E., Barrera, G., Joy B. Beltran, M., Ben Fekih, I., Calatayud, P.-A., Cicero, L., **Cokola, M.C.**, Colmenarez, Y.C., Dessauvages, K., Dubois, T., Durocher-Granger, L., Espinel, C., Fernández-Triana, J.L., Francis, F., et al., 2024b. Functional structure of the natural enemy community of the fall armyworm, *Spodoptera frugiperda* in the Americas. *Biological Control* 105640. <https://doi.org/10.1016/j.biocontrol.2024.105640>
- Wyckhuys, K.A.G., Akutse, K.S., Amalin, D.M., Araj, S.-E., Barrera, G., Beltran, M.J.B., Ben Fekih, I., Calatayud, P.-A., Cicero, L., **Cokola, M.C.**, Colmenarez, Y.C., Dessauvages, K., Dubois, T., Durocher-Granger, L., Espinel, C., Fallet, P., Fernández-Triana, J.L., Francis, F., et al., 2024a. Global scientific progress and shortfalls in biological control of the fall armyworm *Spodoptera frugiperda*. *Biological Control* 191, 105460. <https://doi.org/10.1016/j.biocontrol.2024.105460>
- Cokola, M.C.**, Van Den Bussche, R., Noël, G., Kouanda, N., Sèye, F., Yarou, B.B., Caparros Megido, R., Bayendi Loudit, S.M., Lonpi Tipi, E., Michel, B., Francis, F., 2023b. Managing fall armyworm, *Spodoptera frugiperda* (Lepidoptera: Noctuidae): Experience from smallholder farmers in central and western Africa. *Food and Energy Security* 12, e491. <https://doi.org/10.1002/fes3.491>
- Cokola, M.C.**, Ben Fekih, I., Bisimwa, E.B., Caparros Megido, R., Delvigne, F., Francis, F., 2023a. Natural occurrence of *Beauveria bassiana* (Ascomycota: Hypocreales) infecting *Spodoptera frugiperda* (J. E. Smith) (Lepidoptera: Noctuidae) and earwig in eastern DR Congo. *Egyptian Journal of Biological Pest Control* 33, 54. <https://doi.org/10.1186/s41938-023-00702-2>
- Ishara, J., **Cokola, M.C.**, Buzera, A., Mmari, M., Bugeme, D., Niassy, S., Katcho, K., Kinyuru, J., 2023. Edible insect biodiversity and anthro-po-entomophagy practices in Kalehe and Idjwi territories, D.R. Congo. *Journal of Ethnobiology and Ethnomedicine* 19, 3. <https://doi.org/10.1186/s13002-022-00575-z>
- Ntambo, S.M., **Cokola, M.C.**, Chiona, M., Kankonda, O.M., 2022. Occurrence of the sweet potato hornworm *Agrius convolvuli* (Lepidoptera: Sphingidae) in the Haut-Katanga province, Democratic Republic of Congo. *Journal of Entomological and Acarological Research* 54, 10424. <https://doi.org/10.4081/jear.2022.10424>
- Mugumaarhahama, Y., Mondo, J.M., **Cokola, M.C.**, Ndjadi, S.S., Mutwedu, V.B., Kazamwali, L.M., Cirezi, N.C., Chuma, G.B., Ndeko, A.B., Ayagirwe, R.B.B., Civava, R., Karume, K., Mushagalusa, G.N., 2021. Socio-economic drivers of improved sweet potato varieties adoption among smallholder farmers in South-Kivu Province, DR Congo. *Scientific African* 12, e00818. <https://doi.org/10.1016/j.sciaf.2021.e00818>
- Cokola, M.C.**, Ndjadi, S.S., Bisimwa, E.B., Ahoton, L.E., Francis, F., 2021b. First report of *Spodoptera frugiperda* (Lepidoptera: Noctuidae) on Onion (*Allium cepa* L.) in South Kivu, Eastern DR Congo. *Revista Brasileira de Entomologia* 65, e20200083. <https://doi.org/10.1590/1806-9665-rbent-2020-0083>
- Cokola, M.C.**, Mugumaarhahama, Y., Noël, G., Kazamwali, L.M., Bisimwa, E.B., Mugisho, J.Z., Aganze, V.M., Lubobo, A.K., Francis, F., 2021a. Fall Armyworm *Spodoptera frugiperda* (Lepidoptera: Noctuidae) in South Kivu, DR Congo: Understanding How Season and Environmental Conditions Influence Field Scale Infestations. *Neotropical Entomology* 50, 145–155. <https://doi.org/10.1007/s13744-020-00833-3>
- Cokola, M.C.**, Mugumaarhahama, Y., Noël, G., Bisimwa, E.B., Bugeme, D.M., Chuma, G.B., Ndeko, A.B., Francis, F., 2020. Bioclimatic zonation and potential distribution of *Spodoptera frugiperda* (Lepidoptera: Noctuidae) in South Kivu Province, DR Congo. *BMC Ecology* 20, 1–13. <https://doi.org/10.1186/s12898-020-00335-1>
- Aganze, V.M., **Cokola, M.C.**, Salimbasi, J.M., Monty, A., 2020. Weed diversity in tomato crops in the mountainous region of South Kivu, DR Congo. *Biotechnologie, Agronomie Société et Environnement* 24, 240–

247. <https://doi.org/10.25518/1780-4507.18788>

• Manuscripts under review

- Mugisho, J.Z., Decock, C., **Cokola, M.C.**, Bisimwa E.B., Legrève A. Diversity of *Fusarium* associated with banana wilt in eastern Democratic Republic of Congo. Journal: European Journal of Plant Pathology
- Kankonda, O.M., Akiki, R.B., Pandashalo, M.Z., Selemeni, T.M., Kabuanga, J.M., **Cokola, M.C.**, Mbuya, S.N. Landscape configuration drives fall armyworm dominance over native stemborers in smallholder maize systems in the Congo Basin. Journal: Pest Management Science
- Mbuya, S.N., Kankonda, O.M., Fallah, N., Akutse, K.S., **Cokola, M.C.** Comparative field efficacy of synthetic insecticides and plant extracts against *Tuta absoluta* (Lepidoptera: Gelechiidae) in Lubumbashi, DR Congo. Journal: Scientific Reports
- Cokola, M.C.**, Kenis, M., Noël, G., Caparros Megido, R., Durocher Granger, L., Francis, F. Fall armyworm *Spodoptera frugiperda* (Lepidoptera: Noctuidae) and associated insect natural enemies in eastern DR Congo: community trends and diversity in relation to the pest abundance in maize. Journal: Journal of Economic Entomology
- Kambale, H.M., **Cokola, M.C.**, Mondo, J.M., Kambale, C.V., Civava, R.M. Assessment of maize varietal susceptibility to fall armyworm in highlands of Nord Kivu, eastern DRC. Journal: Crop protection
- Kambale, H.M., Mondo, J.M., **Cokola, M.C.**, Kambale, C.V., Civava, R.M. Breeding maize genotypes for fall armyworm *Spodoptera frugiperda* (Lepidoptera: Noctuidae) resistance through conventional approaches: A review. Journal: Parasitica
- Kouanda, N., Ben Fekih, I., **Cokola, M.C.**, Caparros Megido, R., Delvigne, F., Hanstson, A--L., Sanon, A., Badolo, A., Francis, F. Entomopathogenic Fungi use as endophyte against *Spodoptera frugiperda* (Lepidoptera: Noctuidae): Biocontrol efficacy, crop protection and future perspectives. Journal: Biological control
- Kouanda, N., Noël, G., **Cokola, M.C.**, Sanon, A., Badolo, A., Francis, F. Frequent hybridization between C and R strains of *Spodoptera frugiperda* (Lepidoptera: Noctuidae) and influence of population genetics in Burkina Faso. Journal: Journal of Economic Entomology



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Referees

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- Katcho Karume, Professor at Université Evangélique en Afrique UEA/Bukavu, Tel : +243 994 304 633 ; mail : kkatcho@yahoo.com
- Marc Kenis, Senior Researcher at Centre for Agriculture and Biological International CABI, Delémont/Switzerland, Tel : +41 78 756 07 68 ; mail : m.kenis@cabi.org

The information provided above is accurate and verifiable.

Bukavu, 5th April 2026



Marcellin Cokola Cuma, PhD