Hit the road of plant usages to consilience with Knomana

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Introduction

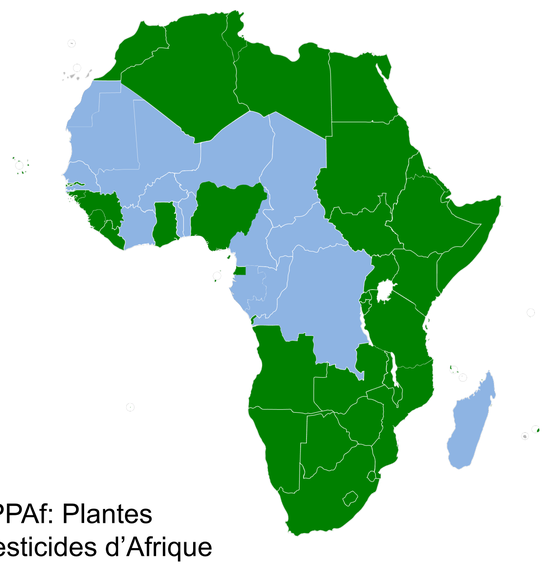
Adopting the One-Health and EcoHealth approaches means reconciling all domains of health (human, public, animal, plant, and environmental) while considering consilience. Applied to crop protection, in particular the substitution of a synthetic pesticide using a botanical product, e.g. an aqueous solution or an essential oil, the first challenge is to choose a plant species, a chemotype, or a mixture of plants whose effects on pest or disease have been scientifically demonstrated in the literature. The adopted botanical can range from a local wild plant to allochthonous cultivated plants. Another challenge is to ensure that this product is less harmful to human, animal, and environmental health than the pesticide.

Aim of this work and results

The knowledge base system Knomana collects description, from the literature, of plant-based extracts (experimented or in laboratory) used in any country to control pests for plant, animal, environmental, public and human health. In April 2024, it listed **3492 plant species** evaluated on **853 pest species** (Animalia, Bacteria, Chromista, Fungi, Plantae, Protozoa et Viruses) and **275 non target species** (e.g. natural enemies, pollinators) to protect **104 organisms** (vegetal, animal, human).

Establishing consilience using Knomana

Building of PPAf* network (2015)



*PPAf: Plantes pesticides d'Afrique

Providing scientific and technical references to final users

https://www.knomana.org

- Publications on plant essays
- Formulations
- Fact sheets to prepare plant product and use it
- Legislation
- …

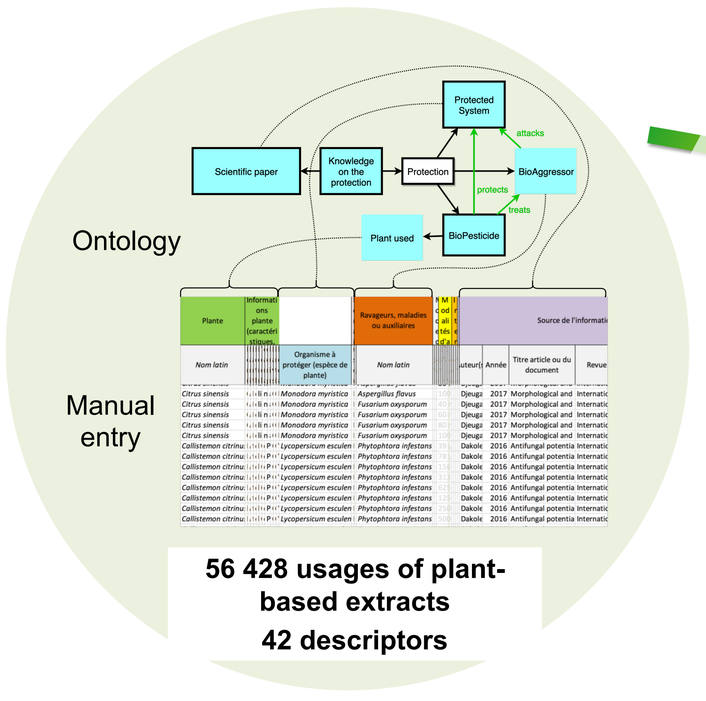
Expertise & laboratories

Technical knowledge

Scientific knowledge

Modelling

Capitalizing knowledge from worldwide literature into a knowledge base



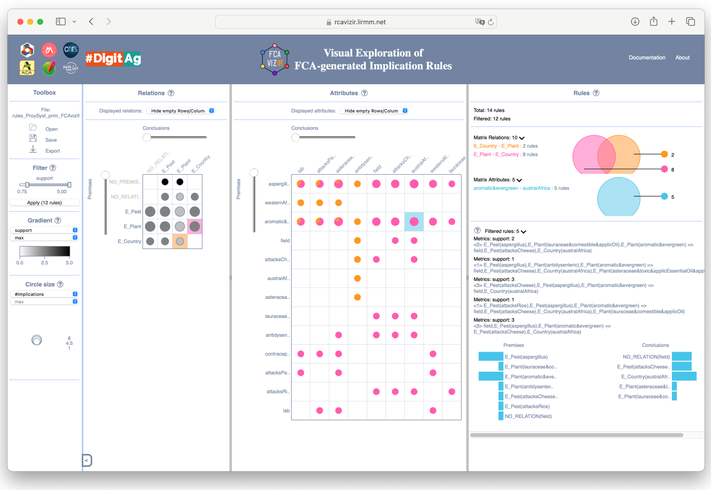
56 428 usages of plant-based extracts

42 descriptors

Suggesting plant-based products considering undesirable effects according to the One-Health and the Eco-health approaches

We need you !!!

Computing and navigating knowledge using Artificial Intelligence methods



https://fcaviz.lirmm.fr

Conclusion

While computer scientists, entomologists, microbiologists, and agronomists are currently carrying out construction of this system, its development need collaboration with pharmacists, veterinarians, epidemiologists, ecologists, etc. in order to fill the knowledge base, to cross disciplines and to combine knowledge on the plant usages resulting of a better choice of a plant for the different health.

Acknowledgements

This work was supported by the INRA-CIRAD GloFoodS metaprogram (2018-2019), the French Convergences Institute for Digital Agriculture #DigitAg (Grant ANR-16-CONV-0004 of the National Research Agency), the I-SITE MUSE (French Future Investment Program), the project SmartFCA (Grant ANR-21-CE23-0023, 2022-2025), and the project Santés-Territoires (AFD-EU funding, 2021-2026).