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BOOK OF ABSTRACTS

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OVERVIEW OF A RESEARCH PROGRAM ON A NEGLECTED AND UNDERUTILIZED SPECIES: CASE OF *SOLENOSTEMON ROTUNDIFOLIUS* IN BURKINA FASO

Romaric Kiswendsida NANEMA[1]*, Aminata Hamidou BA[1], Alphonse SAWADOGO[1], Ignace TONDE[1], Leila ZEKRAOUI[2], Zakaria KIEBRE[1], Hamid EL BILALI[3], Francis KUSI[4], Yves VIGOUROUX[2], Jean-Didier ZONGO[1]

[1]University Joseph KI-ZERBO, Ouagadougou, Burkina Faso
[2]French National Research Institute for Sustainable Development, Montpellier, France
[3]International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM-Bari), Valenzano (Bari), Italy
[4]CSIR-Savanna Agricultural Research Institute, Tamala, Ghana
*Corresponding author: romaric.nanema@ujkz.bf

Abstract

Neglected and underutilized species (NUS) have the potential to contribute to food security, nutritional diversity, and resilience to climate change. Despite their importance, research on most of the NUS is sporadic and building up a research program remains a challenge because of the scarcity of scientific knowledge on their genetic resources. This work is an overview of twenty years (2005-2024) of collaborative research activities on *Solenostemon rotundifolius* in Burkina Faso. The research program started with the identification of the cultivation area followed by a survey carried out to describe farming conditions of *S. rotundifolius*. The genetic diversity was evaluated using morphological and molecular markers. The medicinal potential of *S. rotundifolius* was evaluated through the analysis of leaves phenolic compound content. The effect of planting material (tubers and cuttings) on plant growth and yield was evaluated. These works revealed that different landraces were cultivated as minor crops in 20 provinces (out of 45) of Burkina Faso. *S. rotundifolius* is suited for cultivation in various farming conditions but the main constraint is the limitation in planting material availability. The evaluation of the effect of planting material revealed that the use of cuttings could successfully address the planting material issue. A large collection including 98 accessions from Burkina Faso and 169 accessions from Ghana was characterized and revealed a variability within *S. rotundifolius*. Eight morphotypes were identified based on traits related to leaves, flowers and tuber color and shape. Twelve microsatellite markers were developed on *S. rotundifolius* and revealed high genetic diversity within the collection. The analysis of the phenolic compound content suggested the use of *S. rotundifolius* as a medicinal plant. The methodology of research and the results can serve as a successful example of step-by-step research on other NUS.

Keywords: *NUS, tuber, genetic diversity, farming conditions, research program.*