

Annual Congress on

Mycology and Fungal Infections

November 16-17, 2017 Atlanta, Georgia, USA

A comparative study on the growth of *Aspergillus* species on formulated culture media from food crop wastes and sabouraud dextrose agar

Janet Uchechukwu Itelima
University of Jos, Nigeria

In developing countries where conventional media used for the isolation and growth of microorganisms are very expensive and sometimes inaccessible to researchers, there is a growing interest regarding the utilization of agro-waste materials and other organic wastes for the formulation media used for cultivating microorganisms. A comparative study was carried out to test the suitability of formulated culture media from food crop waste materials (yam, sweet potato and potato peels) and that of a conventional medium for cultivating *Aspergillus* species isolated from different foodstuffs. Three formulated media which included Yam Glucose Agar (YPGA), Sweet Potato Peels Glucose Agar (SPPGA) and Potato Peels Glucose Agar (PPGA) were prepared and used in comparison with Sabouraud Dextrose Agar (SDA) which is a conventional culture medium. One gram of each of the foodstuffs was disinfected using 1% Sodium hypochlorite solution (1% NaOCl) for one minute, followed by three successive rinses in sterile distilled water after which they were coarsely crushed and plated directly unto sterilized Sabouraud Dextrose Agar (SDA). To inhibit bacteria growth, antibiotic drug (gentamicin) in solution, was added to the media. The *Aspergillus* species isolated from foodstuffs which included *Aspergillus niger*, *Aspergillus flavus*, *Aspergillus tamari* and *Aspergillus fumigatus* were aseptically inoculated in duplicate into the three different formulated culture media including SDA which served as a control. The cultures were incubated at room temperature (25°C) for five days. The diameter of the fungal isolates on both the control medium and formulated media was measured in mutual perpendicular direction to ascertain the radial growth, starting from the second day to the fifth day of incubation. The four species of *Aspergillus* species isolated from different food stuffs grew profusely on the different formulated media with the exception of YPGA which yielded poor radial growth of the fungal isolates. Although the percentage radial growth of each of the organism on SPPGA and PPGA did not differ significantly ($p > 0.05$) from each other, *A. niger* and *A. fumigatus* yielded maximum percentage radial growth of (100%) each on SPPGA and PPGA, while *A. flavus* and *A. tamari* yielded (100%) each only on SPPGA. Fungal growth on YPGA gave lowest percentage radial growth of 50.7, 50.2, 48.6 and 43.5% for *A. niger*, *A. fumigatus*, *A. flavus* and *A. tamari* respectively. All the species of *Aspergillus* yielded 100% radial growth on the control (SDA). As the formulated media, especially (SPPGA and PPGA) compared favourably with the conventional medium (SDA) in the terms of the radial growth exhibited by the different species of *Aspergillus*, it is therefore a clear indication that they could be good alternative culture media for the cultivation of these fungal isolates.

Biography

Janet Uchechukwu Itelima has her expertise in Applied Microbiology and passion in research related to Applied Microbiology, Biotechnology, and Plant Science, lecturing, and community services. She has obtained her PhD and she is currently an Associate Professor of Applied Microbiology. She is an Academic Staff of the Department of Plant Science and Technology, Faculty of Natural Sciences University of Jos, Nigeria. She has published 35 papers both nationally and internationally. She has also written two books. She is deeply involved in motivating students on how to obtain academic excellence. She has attended workshops and conferences both nationally and internationally, where she presented papers, chaired sessions and served in advisory committee.

janetitelima@yahoo.com

Notes: