

Title: THE SCIENCE WITHOUT BORDERS SCHEME AND THE EXPERIENCE OF LEARNING MICROBIOLOGY RELATED METHODS ABROAD – ANALYSIS AND IDENTIFICATION OF HUMAN PATHOGENS

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Abstract:

The Science without Borders study abroad program in partnership with The University of Nottingham has given the opportunity to biology students to get more contact with microbiological and molecular methods. The University leads the students to improve their skills to deal with bacterial diseases in the modules Practical Methods in Microbiology and Molecular Techniques in Biosciences, using methods of bacteria transformation, growth of bacteria in specific media and biochemical, antimicrobial and resistance testing. One of the main subjects carried out in class was identification of human pathogens, which is the focus of multiple researches. Three samples underwent multiple tests (urine, sputum and faeces) to identification of unknown microorganisms. Each sample was provided in a Petri dish, one containing BHI agar (for general colony characterization) and the other containing MacConkey agar (differentiation of coliforms and non-lactose fermenters of the Enterobacteriaceae group). Faeces sample in MacConkey agar did not present lactose fermentation; then was tested to oxidid group, showing agglutination - evidence of *Salmonella*. Both isolates from sputum and urine presented lactose fermentation. IMVEC test was used for microorganisms' identification, and the isolates presented different results. Urine showed positive results for indole production, methyl red and Eijkman, and negative results for Voges Proskauer and citrate - indicating the presence of *Escherichia coli* - whereas sputum presented opposite results - giving evidence of the presence of *Enterobacter* sp. The help of the staff played a great role in accuracy of the results. The students underwent practical coursework and weekly reports, exposing the data collected and the explanation of the results due to further research in the literature. The organization and management provided by the tutors played an important role on encouraging us to deal with daily routine in the laboratory and to improve our research and analysis skills in the pathogenicity area. The Science Without Borders program has been excellent for my current and future career, and I am immensely grateful for being part of this huge scheme. I believe that the academic and personal experience I achieved will be crucial for developing a successful professional career when I return to Brazil.

Key words: *Enterobacter* sp., *Escherichia coli*, human pathogens, *Salmonella*, Science Without Borders

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