

Microbiological Quality of Sanitary Toilet Tissue Paper Manufactured in Nigeria And the Implication of their Indiscriminate Exposure to Public Health

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Abstract

In Nigeria, there is a dearth of available data relating to the microbiological quality of sanitary toilet tissue paper manufactured in Nigeria. Thus, this study aimed at determining the microbiological quality of sanitary toilet tissue paper manufactured in Nigeria and the public health implications of their indiscriminate exposure after usage. Total aerobic plate count (APC), total coliform count (TCC) and total coagulase-positive *Staphylococci* count (SC) were measured in all the samples by the spread plate technique. Isolated bacteria were identified with phenotypic techniques. All the samples were also examined for the presence of protozoan parasites. Ninety per cent of the intact commercially packed toilet tissue paper brands had APC that were below or within international recommended limits (2.78 to 3.00 log₁₀ CFU/g). All the intact commercially packed toilet tissue paper brands also complied with the zero tolerance for faecal coliform bacteria, coagulase-positive *Staphylococci* and haemolytic *Streptococci* stipulated by international regulatory authorities. On the contrary, 70% of the brands of toilet tissue paper that were exposed to the environment after usage was found to be significantly contaminated as indicated by APC values that exceeded internationally acceptable standards. While only *Bacillus* species were isolated from the intact batch, *Bacillus*, *Micrococcus*, *Enterobacter* and non-haemolytic *Streptococcus* species, as well as *Staphylococcus aureus*, were all isolated from the exposed batch of toilet tissue paper. Thus, there is a need for the relevant agencies to educate the public on the proper handling of toilet tissue paper during usage to mitigate potential health hazards.

Keywords: Coagulase-positive *Staphylococci*, *Bacillus* species, toilet tissue paper