

Western University

From the Selected Works of Kingsley C Anukam

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EATING PROBIOTIC BACTERIA TO STAY HEALTHY

Kingsley C Anukam

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“Use of probiotics is a simple strategy to strengthen our defense against pathogens; for women it is needed to fight off vaginal and urinary tract infections” Dr. Kingsley Anukam states.

The massive spread of HIV/AIDS, coupled with its devastating effects on reversing relative health gains, and undermining of economic/social developments in the developing country such as Nigeria, has in the last decade compelled scientist to provide alternative means that could reduce the risk of acquiring HIV/AIDS in women. Recommending bacterial ‘transfusion’ to people with depleted normal microbiota may be akin to blood transfusion in patients that have less quantity of blood. The eating of bacteria may not be intuitively rational, but it is a practice we do both consciously and unconsciously. Studies have shown that probiotic therapy helps maintain microbial balance by replenishing good bacteria in our body. By simple definition, probiotics are **“Live microorganisms which when administered in adequate amounts confer a health benefit on the host”**

Dr. Kingsley Anukam, who recently bagged his PhD in Pharmaceutical Microbiology, from the University of Benin, specialized in probiotics; says probiotics specifically **Lactobacilli** and **Bifidobacteria** have received greater attention as an alternative, inexpensive and natural remedy to restore and maintain urogenital and intestinal health of humans. Humans have evolved in symbiosis with an estimated 100 trillion (10^{14}) resident microorganisms than there are human cells (10^{13}). Considering this situation, it is not surprising that microbes have been found to play an important role in human health. Most of these bacteria are not normally harmful and they in fact, contribute positively to the survival and development of the human species. It is estimated that between 400 and 1000 different species of bacteria make the human body their homes. Some strains of Lactobacilli and Bifidobacteria have been found to boost the immune system, prevent allergic inflammation, and different

ailments of the gastrointestinal tract such as diarrhea, salmonellosis, and gastric ulcer infection. Some lactobacilli have been used successfully to treat urogenital infections such as bacterial vaginosis, yeast vaginitis and treating urinary tract infections. While most clinical microbiologists in Nigeria focus their research efforts only on pathogens and they go after them with antibiotics, they pay little or no attention to the normal microbiota of the vagina and gastrointestinal tract. Dr. Kingsley Anukam focused his research efforts on bacterial organisms that make people healthy.



Dr. Kingsley Anukam: Focused his research on bacteria that make people stay healthy.

As an independent biomedical research scientist for the past 14 years, he observed the dominant presence of lactobacilli in the urogenital microbiota of healthy women and the absence of lactobacilli in patients who develop UTI/STD, bacterial vaginosis, yeast vaginitis and many other genital infections including HIV. Dr. Anukam while researching on the identification and selection of lactobacilli with probiotic potentials, started collaborative work with

professor Gregor Reid, the Director of the Canadian Research and Development Centre for probiotics. Dr. Anukam did part of his PhD research at the Lawson Health Research Institute, University of Western Ontario, Canada, where he learnt and used the techniques of polymerase chain reaction (PCR), denaturing gradient gel electrophoresis (DGGE) and Gene sequencing using ABI prism sequencer. He said that Professor Reid has for the past 24 years developed two special probiotic strains *Lactobacillus* GR-1 and *Lactobacillus* RC-14, which today represent the world's leading probiotics for women. *Lactobacilli* are the predominant bacterial species in the vagina of healthy women. They produce antimicrobial substances, such as lactic acids, hydrogen peroxide, bacteriocins, biosurfactants that protect the vagina from infections. But sadly, Dr. Anukam said that this protection offered by *lactobacilli* are not always guaranteed as a result of indiscriminate use of broad spectrum antibiotics, douching, use of spermicides, menstruation, sexual practices and recently eating of fast foods that contain lots of preservatives. These activities reduce the level of *lactobacilli* in the vagina leading to the overgrowth of yeast, bacterial vaginosis causing organisms and urinary tract infections. He maintained that good bacteria colonizing the gastrointestinal tract would lead to good bacteria entering the vaginal tract of women. Dr Anukam said "the strong correlation between loss of *lactobacilli*, dominance of BV causing organisms, inflammation, elevated pH, and increased risk of HIV, makes it seem logical that recolonization of the vagina with *lactobacilli* may reduce the risk of HIV infection in women'. *Lactobacillus* GR-1 and *Lactobacillus* RC-14 strains that can kill viruses have been administered vaginally and orally and found not only to colonize but also to cure bacterial vaginosis. Dr Anukam says that a recent randomized, placebo-controlled study published in the *Journal of Microbes and Infection*, showed significant improved cure of bacterial vaginosis when *Lactobacillus* GR-1 and RC-14 were used. "Over 1 billion women around the world suffer from non-sexually transmitted urogenital tract infections, including bacterial

vaginosis, urinary tract infection (UTI), and yeast vaginitis annually.

"Most women are not aware that they have BV, when symptoms of pain, discharge, itching and odour occur, many women diagnose these symptoms as yeast infections and self-treat with over-the-counter antifungals, when in fact they have BV"

In Nigeria, it is estimated that over 15 million women of childbearing age have bacterial vaginosis. Yeast vaginitis or *Candida* vulvovaginitis is reported by more than 75% of premenopausal women, and more than half of university female students are diagnosed with yeast infections.



For these women: Probiotics can improve their vaginal health.

He posited that using probiotics could reverse the trend of these chronic infections and subsequently improves the quality of lives of women. He stated that studies have shown that women whose vagina is colonized by certain strains of *lactobacilli* are less likely to be infected by bacterial vaginosis, sexually transmitted diseases, including HIV. A healthy *lactobacilli*-dominated vaginal microbiota is now considered to be of utmost importance for preventing various urogenital infections, including recurrent bacterial vaginosis. There is strong evidence, including randomized controlled data to prove that once weekly vaginal capsules of freeze dried *Lactobacillus* strains GR-1 and B-54 prepared with addition of skimmed milk, and once daily oral capsule use of *Lactobacillus* strains GR-1 and RC-

14, (Urex Cap5) can result in the restoration of a lactobacilli dominated vaginal flora and lower risk of UTI recurrences. By creating a lactobacilli barrier in the vagina, it is believed that fewer pathogens can ascend into the bladder, thereby blocking the infectious process.

Dr. Anukam was recently in Durban, South Africa for the 18th International Congress of Nutrition, where he presented his research on the use of probiotics for the treatment of gastroenteritis in HIV/AIDS patients. He says that while health care providers are yet to grasp the probiotic concept in Nigeria, South Africa has embraced it fully.

“Probiotics are most often incorporated in yogurt and fermented milk, but other food forms are being developed and numerous products are sold in tablet, capsule, and powder forms”

*Do you know that **Japan** has the most mature probiotic market dominated by food drinks led by *Lactobacillus casei* Shirota in Yakult launched in 1930?

***Europe**, has a highly developed, growing market; with probiotic yogurt in many European countries.

***Africa**: Probiotics are rarely found in sub-Saharan Africa. In Nigeria, no probiotic products are available.

Dr. Anukam said that it is inconceivable that foreign food companies that have a long standing in Nigeria have made little or no apparent effort to fortify infant formula and other milk based food products marketed in Nigeria and other sub-Saharan African countries with probiotics.

He contended that a policy that would mandate dairy food companies to incorporate probiotics in their products would be welcomed by most Nigerians that know the potentials of probiotics, instead of paying more attention to only antibiotics, and anti-retrovirals, which leads to the development of resistant ‘bugs’.

Dr Anukam submitted that Government agencies such as NACA, UNICEF-Nigeria, FAO/WHO, and other non-governmental organizations can sponsor presentation of seminars or courses to introduce the probiotic concepts to healthcare professionals who likely are not aware of this field. Local industries,

especially dairies, can be connected for advice and training on the creation and/or provision of proven probiotic organisms/products for yogurt, milk-based food products, and infant formula.

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