A Nonviable Preparation of Lactobacillus acidophilus Is Not a Probiotic

To the Editor—As researchers in the field of probiotics, we are compelled to comment on the recent publication by Briand et al. [1]. Probiotics are “live microorganisms which when administered in adequate amounts confer a health benefit on the host” [2, p. 5]. This is the most widespread and agreed definition in use. Briand and colleagues used a nonviable preparation of Lactobacillus acidophilus; it is not, therefore, a probiotic. The term “probiotic” should only be used to refer to specific, defined, live microbial preparations that have been evaluated and determined to have a positive health effect in at least 1 controlled study involving the target host. In fact, the word probiotic itself translates to “for life.” Using a nonviable form rules out many of the opportunities that probiotics can afford in the prevention of traveler’s diarrhea, including excretion of inhibitory metabolites and competition with pathogens for growth substrates and colonization sites.

We would suggest that the criteria delineated by a working group of the Food and Agriculture Organization [3] for characterizing a probiotic be met before the term “probiotic” is used, whether in scientific publications, research grants, or marketed products. In short, these criteria include an identification of the genus, species, and strain of the candidate probiotic using phenotypic and modern genotypic methods; the deposit of the strain in an international culture collection; functional characterization of the strain, including valid bioassays of attributes important to the health effect under investigation; safety assessments; and human studies proving the health benefit. Meeting these criteria will avoid another common mistake made in the use of the term “probiotic”—namely, applying the term to an entire species or genus, rather than to specific strains that have been tested for health benefits. It cannot be assumed that probiotic efficacy documented for 1 strain of a species automatically makes the whole species (or genus) probiotic.

Briand et al. [1] justify their choice to study a nonviable preparation of L. acidophilus on the basis of safety. The likelihood of adverse incidents with their healthy study population is so low as to not be of practical concern [4]. The resultant failure of their study is not unexpected, and it is important that readers of the study not draw broad conclusions about probiotics. This field is progressing well, fueled by groundbreaking research on the impact of commensal and probiotic microbes on human and animal physiology [5], elucidation of the genetic content and function of candidate probiotic strains [6], and increasing numbers of controlled, clinical studies documenting beneficial health effects of probiotics in humans [7]. It is incumbent upon authors, reviewers, and editors involved in probiotic research to seek precision in language, adherence to the formal definition of probiotics, and rejection of unsubstantiated myths that, for too long, have characterized this field.

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Web Resources for Antimicrobial Resistance

In recent issues of Clinical Infectious Diseases, 2 sets of authors have highlighted World Wide Web resources for information related to antimicrobial resistance.