

INTRODUCTION

Leonian, in his recent work (6), has used physiological growth characters almost entirely for the separation of the various species of *Phytophthora*. Until the appearance of his paper, the measurable characters of the various spore forms were the chief morphological grounds upon which such work had been based. Especially is this true in the case of the sexual spores (oospores) of those species in which they are known. The factors which actually determine the production of these sexual reproductive bodies are not yet definitely apparent. *Phytophthora palmivora* Butler, *P. faberi* Maublanc, and *P. nicotianae* Br. de Haan are three forms about the oospores of which little or nothing is known. In view of this, any addition to our knowledge of the size and development of the oospores of these forms is both valuable and of interest. *P. palmivora* and *P. faberi* are considered by Butler (3) to be at most strains of one species, and this view is held by Ashby and Gadd. In this paper forms of this species are, for simplicity, termed strains of *P. faberi*; but, as is mentioned later, the species should be known as *P. palmivora* Butler. The results here set out confirm this view as the oospores of each of the three strains of *P. faberi* used are alike in size and development.