

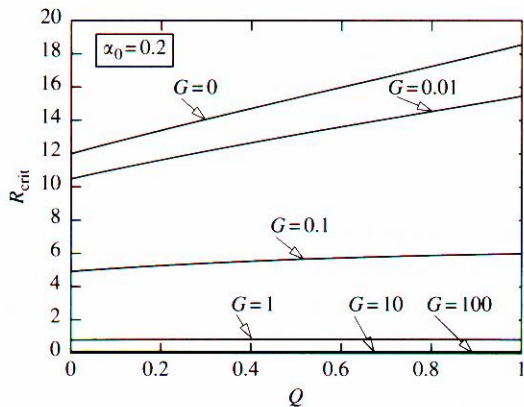
*Modeling Bioconvection in Porous Media*

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Bioconvection is a new area of fluid mechanics, which has been developed during the last few decades. The term "bioconvection" refers to macroscopic convection induced in water by the collective motion of a large number of self-propelled motile microorganisms. This convection is usually characterized by



**FIGURE 16.2**

Plots of critical bioconvection Rayleigh number  $R_{crit}$  versus bioconvection Péclet number  $Q$ , for various values of the gyrotaxis number  $G$ , for cell eccentricity  $\alpha_0 = 0.2$ . (Taken from Nield et al., *Transp. Porous Media* 54: 335–344, 2004. With permission.)