日光温室黄瓜叶片光合速率模型及其参数确定的初步研究

Preliminary study on the model for the photosynthesis rate of cucumber leaves at different ages and determination of parameters in sunlight greenhouse

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中文摘要：

对于属于C3作物的黄瓜，用Charles-Edwards包括光呼吸，暗呼吸和氧效应的光合模型建立其叶片净光合速率模型。并通过试验确定该模型参数。结果表明：以此模型描述黄瓜叶片的光合速率所得到的光合模型参数在一定的光合有效辐射(PAR)范围内与实测数据相符合。不同叶龄的黄瓜叶片其光合特性存在较大差异。其中叶龄为20~30 d的叶片之间光合速率及相关参数差异显著。

英文摘要：

Charles-Edwards leaf photosynthesis model includes photorespiration and lightless-respiration, and it is more rational than other models and validated easily by measurement through experimentation. This model is adopted to describe photosynthesis of different cucumber leaves on one vine in sunlight greenhouse and its parameters are estimated by using nonlinear least squares approximation. The data of experiment that has been processed during Apr to Jun 2004 are consistent with the results of the model simulation under the determinated range of PAR. But there are different model parameters among different ages of cucumber leaves that were divided into three age groups. And the photosynthesis rates have distinct differences among the growing 20～30 days' leaves.

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