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EFFICIENCY OF OBTAINING CHICKEN CHICKES FROM A DIMENSIONED AUTOMATIC BIO-PHOTOVOLTAIC INCUBATOR

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Abstract

The hatching using an incubator supplied from a bio-photovoltaic system, show as an alternative both efficient and sustainable, to regulate the physical factors that take part in biological processes. This research aimed to scale a autonomous bio-photovoltaic system to provide electricity in incubator with total capacity to hatch simultaneously 100 (hundred) chicken eggs. To scale the bio-photovoltaic autonomous system to the incubator was used sizing method of autonomous photovoltaic systems, which consists in calculating the rated power of the photovoltaic generator to scale it in terms of the total energy daily. We arrived to results that the incubator has the energy needs of 806.88 Wh/d, that is enough for successful working of the system, specially in mouth of the lowest radiation, the autonomy days demand that the bio-photovoltaic system was composed of 1 (one) bank of solar cells sealed with capacity of 495,0 Ah, a solar inverter with an apparent power of 400 W, 240 W load one driver current of 20 A to the DC side and 80 m copper electric cables with a minimum cross-sectional area of 1.5 mm². It is concluded that bio-photovoltaic electrification of the incubator is efficient, with outbreak of 80 to 99 % of total eggs and recommended compared with the incubators powered by convectional electric net, because out of present fluctuations, is a technology that is being solidified by presenting modularity, versatility, and large clean source, out of low costs of maintenance, so this results agree with those reported in Mucomole (2013), Casvassim (2004) and Wageningen et.al.(1995) where is applied the same description but for not automatic systems, that result in increasing of energy consumption and consequently its has a less efficiency.

Keyword: Biological processes, bio-photovoltaic, hatching, physical factors, eggs outbreak.

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