

RESEARCH ON PCL

(PCL – plant controlled light)

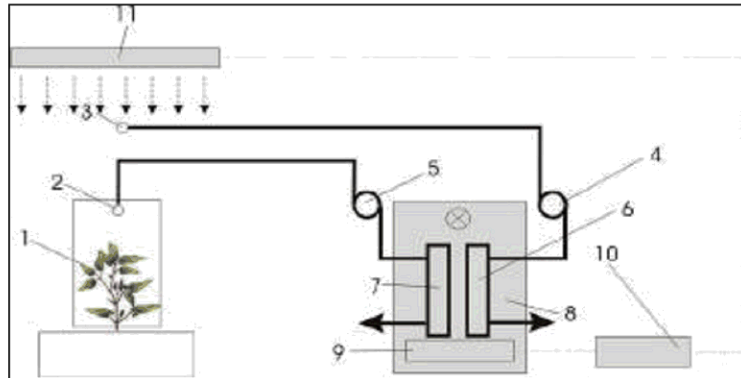
INTRODUCTION

Research of a method to optimize artificial plant assimilation and reduce the use of energy, by comparing the carbon dioxide differences.

1) Construction (Fig. 1.0)

- The air at the inlet (2) is originated by the living plant (1).
- The independent surrounding air intake (3), is not influenced by the plant.
- Two separate pumps (4,5) suck air over the admissions (2,3) and transport the air to the measuring chambers (6,7).
- The CO² – gauge (9) determines the difference from the reference chamber (6) and the analysis chamber (7).
- This analogous measurement is conducted to an amplifier (10) which regulates the artificial light by software.
- The fast switching dynamic light system (11) is subdivided by a computer (10) into light and dark intervals.

Fig. 1.0



2) Control/ Software (Fig. 2.0)

The software calculates the optimal time for the light-ON signal according to a mathematical principle (red dot). After the optimal light phase, the software recognizes the light saturation point of the plant by evaluating the characteristic (blue dot) and the system shuts OFF the light. Because the fast light intervals are 200 sec and less, it is necessary to use fast switching light techniques (for exp. Chopper-Light).

Fig. 2.0

