

Virtually the same maximum oxygen transfer rates of about 1100 mg O₂/l.h could be achieved by the various actions imposed on the system. However, there are some practical limits which should not be exceeded. These limits are:

- The concentration of filamentous biomass should preferably be less than 6000 mg/l, otherwise oxygen transfer is limited in an exponential order with increase in biomass concentration;
- The maximum aeration rate should be limited to about 1 m³ air/m³ liquid.min. Higher aeration rates caused severe foaming and could cause structural damage to the bioreactor.
- The optimum number of mechanical air bubble breakers are two. Less or more mechanical bubble breakers had a diminishing effect on oxygen transfer rates.

Lastly, it was found that there exists a linear relationship between the submergence depth of the diffuser and the rate of oxygen transfer. This means that the deeper the aeration depth, the better.

CONCLUSIONS

This study has produced a few new concepts with respect to the cultivation of filamentous fungi that will make its industrial application practical and economically feasible.

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