

Fractal Analysis of Morphology and Main Culture Broth Rheology of *Acremonium chrysogenum* M25 in a 2.5L Bioreactor

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Fractal dimension was used to describe morphological changes of filamentous fungi, *Acremonium chrysogenum* M25, and relationship with main culture broth rheology was investigated. The differentiation of *A. chrysogenum* M25 showed a complex pattern during the main culture and increases in morphological complexity, namely, highly branched tip and longer hyphal length were correlated with higher fractal dimension in terms of fractal geometry. Also, as generally known most of the fermentation broths exhibited non-Newtonian behavior, rheological properties of the main culture broth was well agreed with the power law model, and the consistency index(K) and flow behavior index(n) were related to fractal dimension change. Overall, it suggest that fractal dimension changes can predict morphological and rheological changes in the main culture broth.