Production of Amylase by *Aspergillus subflavus* and *Aspergillus fumigatus* from flamevine flower (*Pyrostegia venusta* (Ker-Gawl.) Miers): A Tropical Plant in Bedugul Botanical Garden, Bali, Indonesia

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Abstract	Pyrostegia venusta is known as an ornamental plant with its source of antioxidants, cytotoxic, anti-inflammatory, and anti-HIV compounds. Ephypitic molds are potentially co-existed on the surface of this flower since it contains essential nutrients which support their growth. On the other hand, molds produce several enzymes that might involve flower growth. The presence of ephypitic molds on this flower provides information about its ability to produce amylase. This study successfully isolated molds from August flower (P. venusta) originating from Taman Nasional Bedugul, Bali, Indonesia. The study aimed to isolate potential amylase producer strains and optimize the enzyme production using Solid-State Fermentation (SSF) method. Ten mold isolates belonging to Universitas Negeri Jakarta Culture Collection (UNJCC) were selected according to their amylolytic index (IA) values, morphological identification, and colony count number. Selected strains were optimized for its growth to produce amylase using the SSF method under different temperatures (30, 40, 50 degrees C) and pH (6, 7, 8) with a wheat brain fermentation medium. Results showed that UNJCC F100 (6.53 x 10(8) CFU/ml) and UNJCC F106 (9.83 x 10(8) CFU/ml) are the two isolates with the highest IA values of 1.34 +/- 0.1 and 1.08 +/- 0.12 among all isolates. Based on molecular identification using ITS region, UNJCC F100 and UNJCC F106 were identified as A. subflavus (97% homology) and A. fumigatus (99.52% homology), respectively. This study exhibited that both isolate UNJCC F100 and isolate UNJCC F106 have optimal amylase production conditions at 30 degrees C and pH 6. The enzyme produced was 19.99 U/ml at 30 degrees C and 34.33 U/ml at pH 6 for isolate UNJCC F100, and for isolate UNJCC F106 is 28.55 +/- 3.80 U/ml. The two isolates are potentially used for amylase production, referring to the specific environmental condition. However, to generate a higher amount with amylase activity, other external variables such as medium used, inoculum concentration, and fermentation method are important to consider further for a larger application.
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