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Recovery Yields of Fruiting Bodies of *Pleurotus eryngii* in Pot-Type Bottle in Growth Chamber

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Mushrooms have traditionally been used for edible and medicinal uses. With a blunt cap above and a stout stem beneath, the King Oyster mushroom (*Pleurotus eryngii*) develops a thick, white flesh that is firm-textured and meaty from the base to the cap. The King Oyster is typically harvested when the stems reach a length of several inches, but can grow to a size of 6 to 8 inches in length. In this study, the solid media was comprised of 300.0g of sawdust, 58.5g of rice bran, 16.9g of soybean cake, 2.6g of lime and 123.5g of tap water in a bottle. The growth period was 16 to 20 days as compared to a month conventionally recognized. Here we reported several recovery yields (recovery yields per a bottle, per cultivation time, and per weight of media, etc.) of fruiting bodies of the King Oyster in pot-type bottles in growth chamber in control of temperature and humidity.

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Two acetylation pathways of polymeric and monomeric sialic acids in *E. coli* K1

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In this study we describe separate pathways for the O-acetylation of polymeric and monomeric sialic acids, and provide the first demonstration of a new class of esterase with activity against O-acetylated sialic acid. O-acetylation at carbon positions 7 or 9 of the sialic acid residues in the polysialic acid capsule of *Escherichia coli* K1 is catalyzed by a phase variable contingency locus, neuO, carried by the K1-specific prophage, CUS-3. We have developed a novel method for analyzing polymeric sialic acid O-acetylation that involves release of surface sialic acids by endo-N-acetylneuraminidase digestion followed by fluorescent labeling and detection of quinoxalinone derivatives by chromatography. The results indicated that NeuO is responsible for the majority of capsule modification that takes place in vivo. However, a minor neuO-independent O-acetylation pathway was detected that is dependent on the bifunctional polypeptide encoded by neuD. This pathway involves O-acetylation of monomeric sialic acid and is regulated by another bifunctional enzyme, NeuA, which includes N-terminal synthetase and C-terminal sialyl O-esterase domains. A homologue of the NeuA C-terminal domain (Pm1710) in *Pasteurella multocida* was also shown to be an esterase, suggesting it functions in catabolism of acetylated environmental sialic acids. Our combined results indicate previously unexpected complexity in the biosynthesis of microbial sialic and polysialic acids.