

## Figure Captions

Fig. 1. Molecular structures of the glycolipids GL 1, GL 1B, GL 2 and GL 3 produced by *Tsukamurella spec.* GL 1: R = H, GL 1B: R = octadecanoic acid. A, B, C, and D: order for the sugar moieties.

Fig. 2. Parameters of a bioreactor cultivation of *Tsukamurella spec.* using calendula oil as carbon source. Cultivation conditions were: culture volume of 5 L, 120 g/L calendula oil, stirring rate of 550 rpm, temperature of 30 °C and aeration rate of 0.4 vvm. Medium with 1.78 g/L  $K_2HPO_4$  and 7.44 g/L  $(NH_4)_2SO_4$ . Residual oil after 190 h: 20 g/L.

Fig. 3. Product composition of a bioreactor cultivation of *Tsukamurella spec.* using calendula oil as carbon source. Cultivation conditions were: culture volume of 5 L, 120 g/L calendula oil, stirring rate of 550 rpm, temperature of 30 °C and aeration rate of 0.4 vvm. Medium with 1.78 g/L  $K_2HPO_4$  and 7.44 g/L  $(NH_4)_2SO_4$ .

Fig. 4. Overview of chemo-enzymatic conversions with GL 3. First, it could be directly acylated with a lipase to give GL 4 and 5, second, it could be deacylated to give G 3 and then reacylated to afford GL 6, and third, it was possible to produce GL 2 with a  $\beta$ -Galactosidase. A, B, C, and D: order for the sugar moieties.

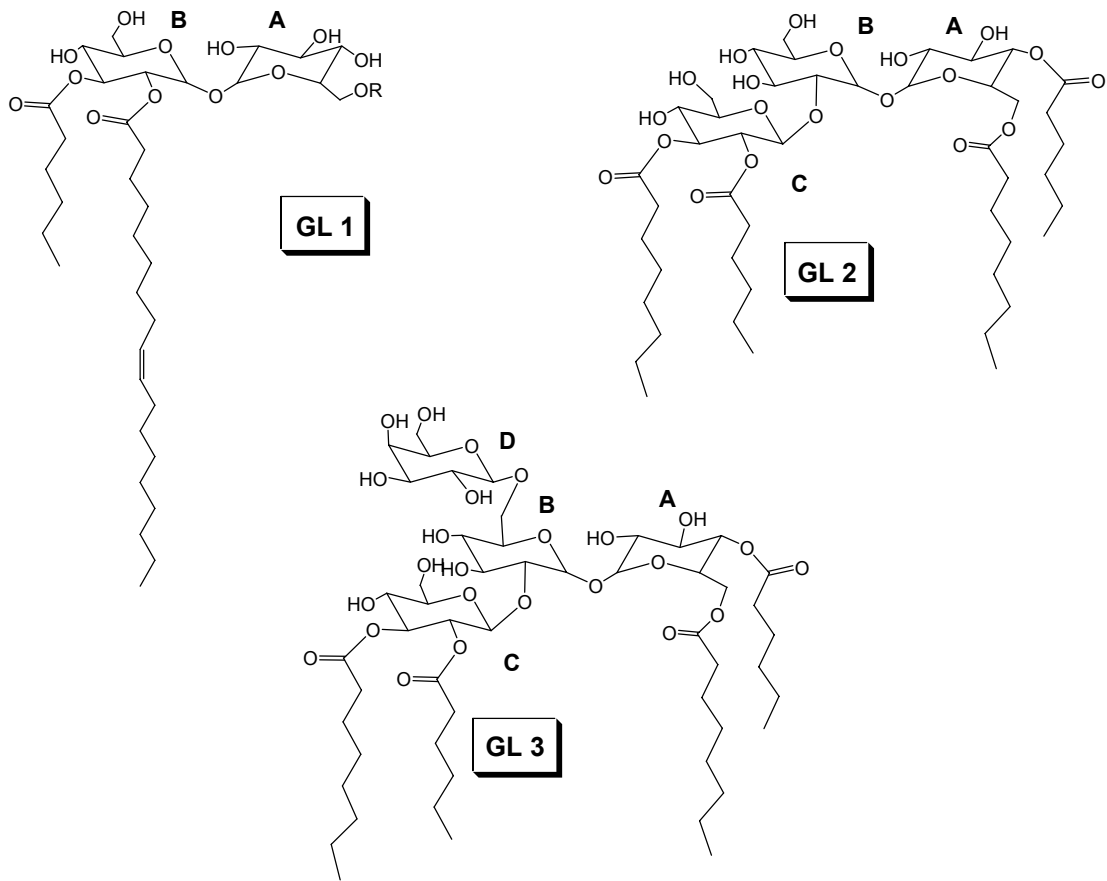


Fig. 1

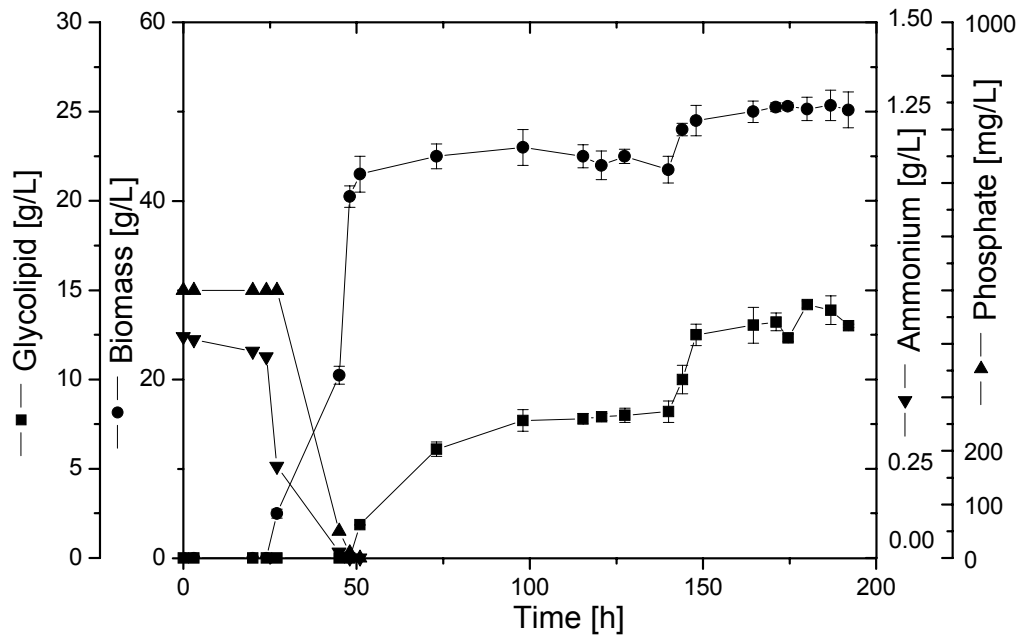
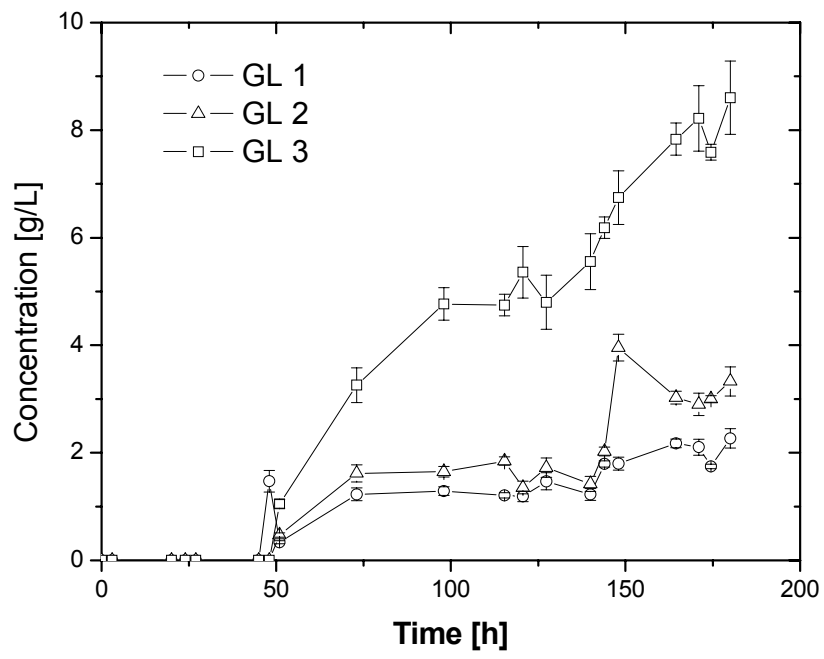


Fig. 2



**Fig. 3**

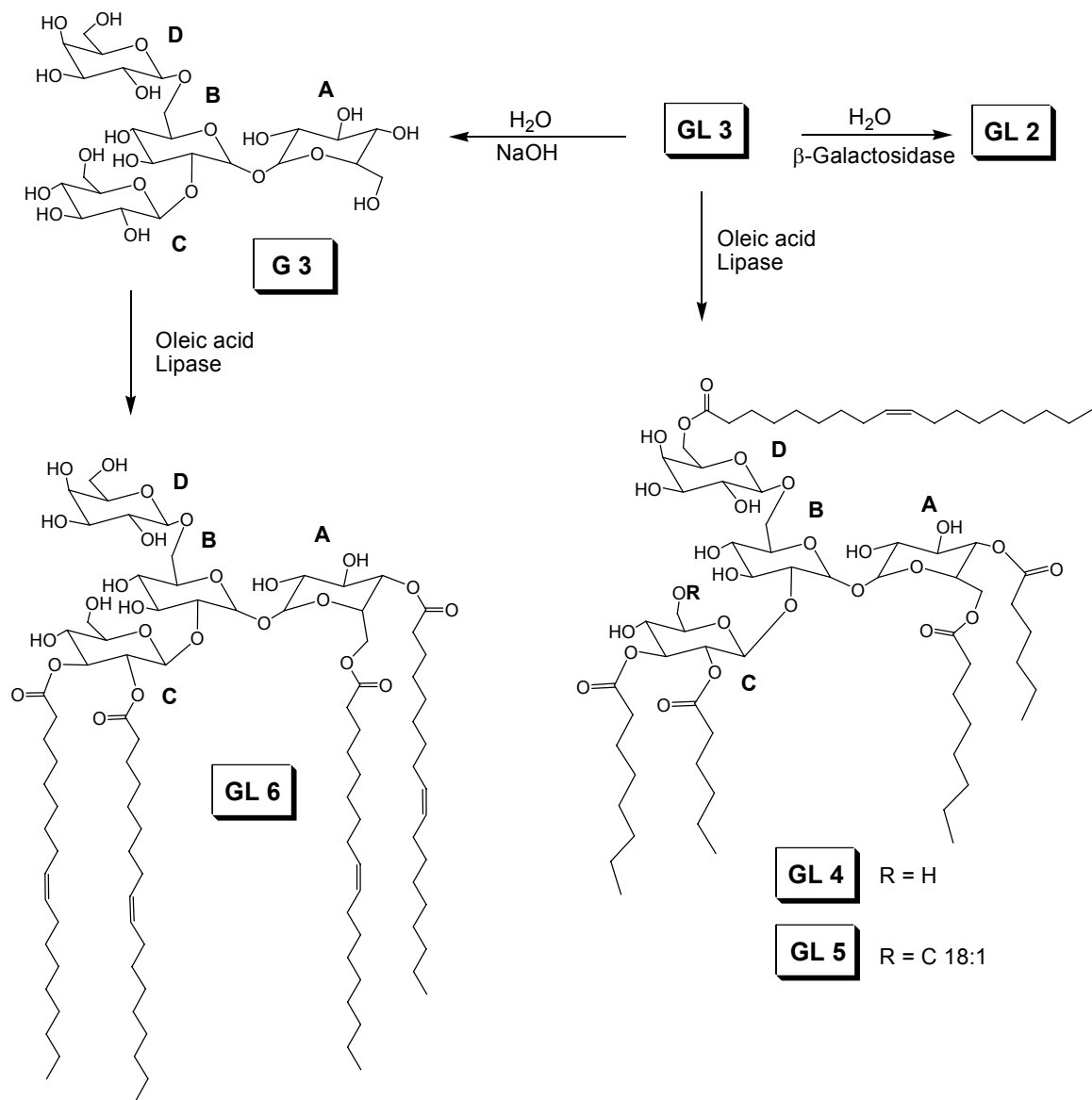


Fig. 4