Identification of sulfoquinovosyl diacylglycerol as a major polar lipid in *Marinococcus halophilus* and *Salinicoccus hispanicus*, substitution with phosphatidylglycerol, and adjuvant properties

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**ABSTRACT**

The sulfonolipid sulfoquinovosyl diacylglycerol (SQDG) normally associated with photosynthetic membranes was identified as a major lipid in *Marinococcus halophilus*, *Salinicoccus hispanicus* (*Marinococcus hispanicus*), and *Marinococcus H8* (*Planococcus H8*). Phosphatidylglycerol and *Planococcus* H8 were obtained from the NRC Collection as ATCC 49259. The standard growth medium (pH 7.0) contained (g/L) KCl 2.24, MgSO4·7H2O 19.72, CaCl2 2·O, sodium citrate 2.94, OssoL 137 peptone 15.0, and NaCl added from 0.0 to 4 M.

Total lipid extracts dissolved in chloroform were analyzed by fast atom bombardment MS with a Joel JMS-AX 505H spectrometer operated at 3 kV in negative-ion mode. SQDG was purified from lipid extracts by thin-layer chromatography.

**METHODS**

*Marinococcus halophilus* (ATCC 27964) and *Marinococcus H8* (*Planococcus H8*) were obtained from the NRC Collection as NRCC 14033 and 14037, respectively.

**RESULTS**

The polar lipid extracts of *Marinococcus* (*Planococcus*) H8, *Marinococcus halophilus*, and *Salinicoccus hispanicus* all consisted primarily of SQDG, PG, and minor amounts of cardiolipin (Fig 1).

**CONCLUSIONS**

1. Gram-positive, halophilic cocci in the genera *Marinococcus* and *Salinicoccus* synthesize SQDG as a major lipid.

2. SQDG/phospholipid ratio varies according to the NaCl content during growth. During optimal growth in low phosphate, high sulfate media, SQDG can approach 90% of the total lipids.

3. Purified SQDG is active as a vaccine co-adjuvant.

**REFERENCES**

