

Growing algae in the desert is feasible

Year-round production, plenty of sun (and therefore high yields) and an abundance of 'free' non-productive land. This makes the Qatar desert the ideal place to grow algae. PhD candidate Kira Schipper researched the potential.

There is rather too much than too little sun in the Qatar desert for algae, says Schipper, who has lived in Qatar since 2011 and works in the local university's algae group. 'The algae grow really well out of doors but may die if they are exposed to too much UV light.' Schipper and her colleagues identified about 200 local algae, most of which

grow in saltwater. She tested one species in the lab at her faculty. This alga produces a blue pigment

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that is used as an ingredient in pharmaceutical products and make-up. The proteins in this alga can be used in animal feed.

Schipper is now testing the algae production in 200-litre tanks of saltwater in the desert, aiming to identify the optimal light intensity for algae cultivation and the effect of the uncontrolled conditions you get outside the lab.

Evaporation

One of the issues is water evaporation. 'The more water evaporates, the higher the salt concentration. Algae can cope with salty conditions, but at some point, the water becomes too saline. We are now testing whether we can add freshwater from a purification plant.' Schipper expects to see large-scale algae production in Qatar in the coming years. 'There is considerable interest and financial support from the Qatar government, the electricity you need is cheap, and this is also a way of sequestering CO₂.' One of Schipper's colleagues is testing an alga that produces plenty of omega-3 fatty acids that are suitable as chicken and fish feed. Qatar university is now considering combining algae production with fish farming in the desert. AS

Kira Schipper obtained her PhD on 8 June. Her supervisors were Bioprocess Engineering professors René Wijffels and Maria Barbosa.



Photo Kira Schipper