# Essai de valorisation de la biomasse algues (*Ulva sp.*) par co-digestion anaérobie avec du lisier de porcs

*Pascal PEU (1), Jean-Francois SASSI (2), Romain GIRAULT (1), Patrick DABERT (1), Fabrice BÉLINE (1)*

*(1) Cémagref, UR GERE, 17 avenue de Cucillé, CS 64427, F-35044 Rennes, France.*
*Université Européenne de Bretagne, F-35000 Rennes, France.*
*(2) Centre d'Étude et de Valorisation des Algues, Presqu'île de Pen Lan,BP 3, L'Armor-Pleubian, F-22610 Pleubian, France.*
*pascal.peu@cemagref.fr*

*Avec la collaboration technique de Sylvie PICARD(1), Patricia SAINT CAST(1) et Julie BUFFET(1)*

**Anaerobic co-digestion of seaweed biomass (*Ulva sp*.) with pig slurry.**

This study aims to investigate the feasibility of using seaweed stranded on the beaches as a co-substrate in the anaerobic digestion of pig slurry. The biochemical methane potential of *Ulva sp*. was measured and tests for co-digestion with pig slurry were carried out in a pilot laboratory project. The methanogenic potential of this seaweed was low compared to other co-substrates potentially available for use by farmers: 148 $Nm^3CH_4.t^{-1}$ volatile solids or 19 $Nm^3$ $CH_4.t^{-1}$ of crude product. Used as a co-substrate, it did not appear their use caused any notable disruption in the process of digestion. The amount of hydrogen sulphide found in a biogas is an important consideration. At equilibrium, the biogas produced had a content of 3.5% $H_2S$ for a substrate mixture of pig manure / *Ulva sp*. (48/52%), making it unsuitable for energy recovery without treatment. As a comparison, the content of biogas during digestion of pig manure alone was around 0.2%. The high concentrations of dissolved sulphide in the digesta would be problematic for its agronomic use because the dissolved sulphides would be converted to hydrogen sulphide gas during land application (spreading). Lastly, this study showed that green seaweed was rich in organic nitrogen, which was partially mineralised in ammonium, and this would impact the land application (spreading) plan implemented by the farmer.