**Special PhD position for applicants from Africa**

**Valorization of Seaweed Biomasses: Potential of the Species from the Coastal Waters of Africa**

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CV, publications and running projects be seen from [**here**](https://www.etis.ee/CV/Rando_Tuvikene?lang=ENG)

Information about the research group can be seen from [**here**](https://www.tlu.ee/en/lti/research/snsh-research-groups#hydrocolloids-and-marine-biomasses-analysis-research-group)

**The PhD project** focuses on isolation of beneficial compounds (e.g. gelling substances, pigments, bioactive molecules) from various seaweed species originating from the coastal waters of Africa.

The main tasks of the project are as follows.

* Sample collection from the coastal waters of Africa. Reference samples will be obtained from the Baltic Sea and from Pacific Ocean.
* Isolation of the beneficial compounds from the seaweed biomasses, optimization of extraction conditions.
* General characterization and purification of the isolated compounds.
* Modification of the algal polysaccharides samples by chemical, enzymatic or ultrasonic treatment and characterization of the preparations by structural analysis and chromatographic methods.
* Screening for the microorganisms suitable for production of the enzymes for seaweed biomass conversion.
* Characterization of the degradation products (partially degraded polysaccharides and oligosaccharides) obtained by enzymolysis of seaweed polysaccharides.
* Characterization of the rheological and optical properties of the obtained biomaterials.
* Screening the samples for antioxidant, anticoagulant, anti-inflammatory, antimicrobial activities.

The main analytical/instrumental methods used in the project are: multidetector HPLC, HPLC-MS, preparative chromatography, GC-MS/FID, NMR, FTIR, FT-Raman, spectrophotometry, fluorimetry, dynamic rheometry, ultrafiltration techniques, coagulometry, common microbiological methods, cell culture techniques, PCR technique, DNA isolation and purification, protein purification methods.

***Keywords***: Seaweeds, algal polysaccharides, polysaccharide degrading bacteria, biomass conversion, enzymolysis, biological activity.

*More information about Complex Systems in Natural Sciences PhD programme:*

[*https://www.tlu.ee/en/lti/complex-systems-natural-sciences-phd*](https://www.tlu.ee/en/lti/complex-systems-natural-sciences-phd)