Algae Extraction

Algae Extraction was performed with 20 liters from a *Chlorella vulgaris* culture with an optical density of 3 (measured at 750 nm). The cells were centrifuged at 7000g for 10 minutes with the Avanti JXN-26 centrifuge from Beckman Coulter. Two washing steps followed were the pellet was recovered in distilled water and transferred into 50 ml falcons, then centrifuged again at 4000 g for 10 minutes in the Megafuge 1.0 centrifuge from Heraeus Holding GmbH. After that the pellet was resuspended in 1M HCl in a ratio of 1:8 (volume pellet to volume HCl) and transferred to several 50 ml Falcons. The falcons were heated in boiling water for 1,5 h. After that the suspension was split up in several additional 50 ml falcons prefilled to the half of the falcon volume with 200 µm diameter glass beads. The cell disintegration was performed in up to 10 50ml falcons with a self-constructed bead mill from the Biobased Materials Group of the Institute of Biomaterials and Biomolecular Systems University of Stuttgart. The mill process was performed two times for 5 minutes. Afterwards the suspension was separated from the glass beads with a Stainless-steel test sieve with a mesh diameter of 100 µm from Retsch GmbH. The suspension was recovered in a 1-liter beaker. Glass beads in the sieve were washed with distilled water. The flow through was collected in the same beaker. The fluid was than neutralized with 10M NaOH and homogenized by stirring. After that it was centrifuged again in 50 ml tubes at 4000 g for 10 minutes. The supernatant was collected in a 1-liter laboratory glass bottle for autoclavation process. After the autoclavation a last centrifugation step for 10 minutes at 4000 g followed. The supernatant was collected in a 1-liter beaker for lyophilization.