

The invention is a method of two-phase anaerobic digestion where monitoring and adjusting the nitrogen status (carbon to nitrogen molar ratio, i.e. C/N molar ratio or total or ammoniacal nitrogen content) enables maintaining optimum conditions during the process. The method improves the use of a variety of feedstock materials or facilitates monodigestion of one feedstock. Especially the introduction of nitrogen rich feedstock materials in the process is amended. A community of hydrolyzing and acidogenic microorganisms in the first phase digester performs ammonification i.e. release of organic nitrogen as ammonia. Nitrogen and phosphorus are removed and recovered from the digestate which then undergoes biogasification in the second phase of the process. Reject water from biogasification can be recycled within the process.