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Abstract	:	Municipal wastewater treatment plants produce vast amounts of sewage sludge as waste, with more than 80% dewatered sludge (DS). DS is a polymer-based sludge containing flocculant and extracellular polymeric substances, including lipids. Lipids can be converted into biodiesel as an alternative energy that reduces dependency on fossil fuels while helping cities manage waste more sustainably. Past studies explored the potential of lipids from various sewage sludges in biodiesel production. However, the potential of DS remains largely unexplored. This study evaluates the lipid extracted from DS and the potential of its fatty acid methyl ester (FAME) to be used as biodiesel. Lipid extraction was conducted under varying parameters, including temperatures of 70, 80, and 90 °C, extraction time of 2, 4, 6, and 8 h, and sludge-to-solvent (S/L) ratios of 0.05, 0.075, 0.1, 0.125, 0.15, and 0.175 g/mL. The optimal extraction conditions of 70 °C for 4 h at S/L of 0.175 g/mL yielded $1.71 \pm 0.10\%$ lipid. FTIR and TGA revealed that the DS lipids contain triglycerides, fatty acids, glycerol, and proteins. Transesterification of DS lipids produced DS FAME with a fatty acid profile ranging from C4:0 to C22:0. The evaluation of DS FAME revealed a high ester content (94.7%) of fatty acids ranging from C14:0 to C24:1, surpassing the minimum standard of 90% for biodiesel. The elevated proportion of unsaturated fatty acids in DS FAME is expected to result in a low melting point, reducing the solidifying effect and enhancing its performance as biodiesel. Keywords: polymer-based sludge; secondary raw materials; biowaste valorisation; lipid extraction; biodiesel feedstock; sustainable energy; circular economy.