

# Biomass quality index: Searching for suitable biomass as an energy source in Chile

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A Biomass Quality Index (BQI) developed using a previously reported tool was shown to be a promising method to rank biomass suitable for solid biofuel production. The BQI was developed by selecting 12 chemical parameters to be analyzed among ten available biomasses produced in the north, central and south of Chile. Furthermore, a Parameter Quality Index (PQI) was calculated to estimate the contribution of each parameter in the BQI. The sum of all PQIs for each biomass allowed the BQI to be determined, and biomasses with lower BQIs were more highly ranked. The results showed that the first 3 ranks were dominated by biomasses collected in central Chile, hazelnut shell, cherry pits and corn cobs (BQI = 16.1). Furthermore, a promising candidate that was ranked fourth place was wheat straw (BQI = 17.7), which may be able to be used in the highly polluted southern zone. Meanwhile, grass and the microalgae *N. gaditana* were ranked last (BQI = 69.5). The low BQI obtained for the studied biomasses were related to their low PQIs regarding moisture content, low trace element content, low ash percentage and high carbon content and HHV. By contrast, high BQI values were related to high PQIs for moisture, Cl, Na and K content. K had a high contribution and Cu had a low contribution in the index. Due to the difficulty of milling the top ranked biomass, further studies should include a grindability analysis or other physical parameters to complete the BQI methodology. © 2019

Biomass

Chile

CO2 emissions

Quality index

Renewable energy

Solid biofuel

Biofuels

Chemical analysis

Moisture

Quality assurance

Trace elements

Chile

CO2 emissions

Quality indices

Renewable energies

Solid bio-fuels

Biomass