

THE EVALUATION OF THE QUALITY INDICES OF FRUIT TREES PRUNING RESIDUES FOR BRIQUETTES PRODUCTION

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Bioenergy is the most significant renewable energy source and more than two thirds of biomass utilized for energy conversion consists of forestry and agricultural residues, such as fruit tree pruning. The main goal of our research was to evaluate the quality indices of biomass- fruit trees pruning residues for briquettes production. We found that collected fruit trees pruning residues contained 2.08 % ash. The elemental composition of dry biomass was 42.3% carbon, 6.2% hydrogen, 0.5% nitrogen, 0.03% sulphur. The specific density of the briquettes made from milled fruit trees pruning residues reached 1050 kg/m³. The heating value of biomass 20.0 MJ/kg gross calorific value, 18.6 MJ/kg net calorific value and 16.5MJ/kg net calorific value of briquettes at 10% moisture content. The biomass from pruning fruit tree can be used as substrate for the production briquettes as renewable energy. Biomass from pruning, being a residual material, does not create any additional demand for land and can deliver substantial greenhouse gas emission savings compared to fossil fuels.

Key words: briquettes, elemental composition of biomass, fruit trees pruning residues, heating value