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Abstract	:	<p>Spent bleaching earth (SBE); a solid waste generated from refining palm oil process and spent mushroom substrate (SMS); a waste generated from grey mushroom plantation were explored as potential binding agents. The experimental work of pelletisation using a pelleting machine was carried out by varying the ratio of peat moss (PMS) to spent bleaching earth (SBE) and spent mushroom substrate (SMS) at 90:10, 80:20 and 70:30 (by weight %). Several analyses were conducted to determine the physical and thermal degradation characteristics of the peat moss pellet at different level of binders. Density and hardness tests were performed for physical analysis. Results from durability test shows that pellet from the tested ratios achieved pellet durability index (PDI) value of more than 97.5%. In terms of pellet hardness, pellet mixed with SBE was found to decrease its hardness when the amount of SBE in the mixture increases. On the contrary, for peat soil pellet mixed with SMS, when the amount of SMS in the mixture increases, the pellet hardness also increases. In terms of water resistance, peat soil pellet mixed with SBE showed high resistance towards moisture whereas peat soil pellet mixed with SMS was found to break during the test when the amount of SMS binder increased. The pelletisation of peat soil aimed to increase the density and strength of the material and consequently provide better thermal degradation characteristics It can be concluded that the most ideal formula among the tested ratios to produce biosolid fuel pellet with SBE as binding agent was 90:10 PMS:SBE whereas for pellet with SMS as binding agent was 70:30 PMS:SMS.</p>