CHEMICAL CHARACTERISTICS OF SOURCE SEPARATED MUNICIPAL ORGANIC WASTE DEGRADED WITH DIASTIC MICROBES (OF *ACHATINA ACHATINA*) AS ANIMAL FEED

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ABSTRACT

Household municipal organic wastes (MOW) of Nigerian municipality in Umuahia were source separated and analyzed for chemical characteristics for farm animal feeding. This was done based on visible contaminations, degradation and chemical composition using 2 tones of municipal solid waste (MSW) materials. After the manual sorting and magnetic separation of the wastes, 80% was sorted as MOW; of which 8% of it was observed as paper waste (PW). The MOW was dehydrated using diastic microbes obtained from the snail (*Achatina achatina*). The carbon, carbon to nitrogen, nitrogen, phosphorus and potassium concentrations of the degraded municipal organic waste (DMOW) improved significantly ($P<0.01$, $P<0.05$, $P>0.05$, respectively). There was a difference in metabolized constituents form of cellulose, crude fat, starch, lignin, hemicelluloses, sugar and energy value; all in favor of the DMOW which is in form of utilizable nutrients, especially for the ruminants. The concentrations of lead and other heavy metals found in the MOW that was degraded with diastic microbes were slightly high in metabolic nutrients ($P<0.01$) on the DMOW feed over the nondegraded municipal organic waste (NDMOW) feed. This is within the tolerance level and acceptability for farm animal nutrition, especially for ruminants. Further, it is good to note that, delivering 7.709 million tons of waste papers (WP) annually from Nigeria alone to paper factories for recycling will save 122,361,905 trees from being cut down each year. This will help to improve the environmental condition and health by reducing the high level of the green gases emission and nitrogenous compounds in the environment. Also, will help in the minimizing the carbon circulation in the atmosphere.

Keywords: diastic microbes, municipal organic waste, carbon, heavy metal, lignin, cellulose, nitrogen, degradation, metabolic nutrients.