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Domestic compost production, its properties and components

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In the ancient Iran and up to about half a century ago, no such a problem as removal of wastes existed. With the onset of employing artificial materials including nylon, plastics, and other petrochemicals and using various metals for packaging, a new problem called removal of wastes arose. On the other hand, due to intermixture of dry and wet materials, a sap is produced in which heavy metals are dissolved and this sap once entering the earth will pollute soil and subsurface waters. One of the procedures for reducing level of wastes and as a result decreasing their harmful impact is to convert them into compost especially in the houses. Compost is of two kinds namely ordinary or garden compost and worm compost. Compost is a substance made of vegetal wastes putrefied through a special method and converted to a powder used in gardening and agriculture as a type of organic fertilizer. To produce home-made compost a wooden-frame box the walls of which are made of wood, perforated steel sheets or wire net is used in which kitchen and garden plant wastes via substances called accelerators are converted to compost. This compost produced as a result of imperfect fermentation of accelerators and action of bacteria is a grey, black and occasionally brown material which has a smell like that of the forest floor or humid greenhouse which is not pungent al all and is worth twice the ordinary fertilizers. This compost is useful in many ways including water retention, ease of tillage, soil protection against flood, decreasing use of chemical fertilizers, improving soil texture etc. Factors influencing compost production include: temperature, availability of oxygen, pH, humidity and C/N ratio. In case the proper C/N is not observed, the produced compost will release a bad odor. Worm compost is produced using kitchen and other plant wastes through activity of earthworms. Excrements of these worms (casts) is covered by a slow-dissolving, semi-permeable mucus which through a special mechanism gradually release its contents and has a high capacity of water retention. Each gram of compost contains up to 1 billion bacteria, 100 million Actinomycetes, 1 million algae and fungi, and hundreds of thousands of protozoa. Therefore, in fact compost can be considered as a living material. One of the important constituents of compost is humus which is a complex organic material produced by the activity of soil bacteria and is considered as a reservoir of nutrients, retains water, helps softening the soil and its dark color early spring makes it possible that the soil becomes warm sooner and in the summer it works as a thermal insulation. Final result of decomposing organic materials and ultimate aim of composting is to produce humus.

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