Composting of municipal open market wastes (MOMW) with rose oil processing wastes (ROPW), dairy manure (DM), and straw was investigated. Three compost mixes were prepared based on the initial measured carbon/nitrogen (C/N) ratios of 9.9, 12.4, and 15.9 for Mix-1, 2, and 3, respectively. The composting experiment was conducted in an open type composting bin with three sections. During the composting process, temperature, O2 concentration, CO2 and H2O emissions, moisture, pH, electrical conductivity, total carbon, total nitrogen, and organic matter were measured. The experiment lasted for 44.75 days. The results revealed that the highest temperature recorded during composting was 62, 67, and 66 °C at 6, 6, and 10th days of composting for Mix-1, 2, and 3, respectively. The highest organic matter loss (55.9 %) occurred for Mix-3 having the mixing ratio of 0.37, 0.25, 0.23, and 0.15 (kg kg\(^{-1}\), dry mass basis) of MOMW, ROPW, DM, and straw, respectively. Results on CO2 and water emissions from the surface of piles during composting process supported that the highest degradation occurred at Mix-2 and Mix-3. The resultant pH of mixes ranged from 7.51 to 8.35. The compost with the final C/N ratios of 7.4, 7.9, and 9.5 for Mix-1, Mix-2, and Mix-3, respectively met the criteria for the mature compost and could be utilized for plant growing. In conclusion, the results showed that composts with the adequate amount of nutrients for plant growing could be produced with these wastes. * sV?IE