‘Prata-Anã’ has become one of Brazil’s most consumed banana cultivars (Musa sp), due to good agronomical characteristics and great tolerance to chilling injury of its fruits, which favors a long stability during cold transportation and storage. Color and flavor are the most important quality attributes of tropical fruits. As banana lacks an attractive color its flavor rises in importance. The objective was to evaluate the volatile profile of ‘Prata-Anã’ fruits, identifying the individual contribution of compounds to its characteristic aroma and flavor. Headspace components were trapped by SPME (DVB/CAR/PDMS fiber, 60min, 25°C, under agitation) and identified by GC-MS (DB-Wax, quadrupole detector) and retention indices. The odor-active compounds were assessed by Osme technique, where three judges evaluated the aroma of GC effluents in four replicates, describing its aroma quality and registering the perceived intensity in a time-intensity scale. Not perceived stimulus scored zero. Isoamyl butanoate showed the most intense aroma, with banana, fruity and sweet odor notes. Esters isobutyl acetate, isobutyl hexanote, pentyl butanoate and 2-pentyl pentanoate were also important to the fruit-like aroma. Acetate, isobutanoate and isopentanoate amyl esters, together with ortho and p-xylene contributed to strong sweet aromas. Green odor notes were given mainly by 2-heptanone, 5-hepten-2-one and 1,3-dimethyl butanoate. Some important compounds could not be identified. Judges perceived and described other important and powerful compounds that were not detected by the instrumental detectors, indicating that more work should be done regarding the volatiles extraction step in order to improved detection and identification.