Consumer acceptability of concentrated cashew apple juice is not as high as for the fresh juice. Thus the aim of this research was to evaluate the impact of the concentration process on the volatiles, and on the aroma and flavor profiles of cashew apple juice. Three and a half liters of fresh juice were concentrated in a thermal-siphon type evaporator at 35°C, operating in a closed system under vacuum (700 mmHg). Concentration was performed in five steps producing juice with the following concentrations: 10.6°Brix (fresh juice), 12.1°Brix, 14.3°Brix, 19.3°Brix, 28.0°Brix and 40.0°Brix. The headspace volatiles of the six samples were extracted by vacuum (70 mmHg), stripped into a Porapak® trap for 2 h, eluted with 300 µl of acetone, identified by GC-MS, quantified by external standardization, and their odoriferous importance assessed by GC-olfactometry. A sensory panel generated the aroma and flavor profiles of the six samples. The results revealed positive correlations between the intensity of “cashew apple flavor” in the samples and their contents of the following esters: methyl-butanoate ($r=0.85; p=0.03$), methyl-isovalerate ($r=0.82; p=0.04$), methyl-2-methyl-butanoate ($r=0.86; p=0.03$), ethyl-trans-3-hexenoate ($r=0.84; p=0.04$), methyl-2-methylenebutanoate ($r=0.84; p=0.04$), ethyl-butanoate ($r=0.85; p=0.03$), ethyl-isovalerate ($r=0.85; p=0.03$), ethyl-2-methyl-butanoate ($r=0.85; p=0.03$), ethyl-trans-2-butenoate ($r=0.86; p=0.03$) and ethyl-hexanoate ($r=0.84; p=0.04$). All these esters were lost during concentration, except the ethyl-butanoate, whose content dropped from 32.38 µg/l in the fresh juice to 0.22 µg/l in the concentrate (40°Brix). The overall content of esters and terpenes fell from 226.45 µg/l and 118.99 µg/l, respectively, in the fresh juice, to 3.07 µg/l and 0.57 µg/l in the concentrate juice (40°Brix), which impacted the sensory profile of the beverage and probably its consumer acceptability.