

COFFEE.

Coffee is the seed of a tree of the family rubiacee, cultivated principally in the East, and the berry, being first roasted and ground, is extensively used in this country as a beverage. A considerable portion of it is sold in the ground state, and then it is said to be extensively adulterated with chicory, corn, beans, potatoes, and other articles, all of which have to be roasted or partially charred before they can be mixed with the roasted coffee. In order to detect these adulterations, it is necessary to become well acquainted with the characteristics of the genuine and adulterating articles respectively.

The coffee berry, previous to roasting, and even after it has been soaked for a long time in water, is hard and tough, in which respect it differs from all those substances which are used in its adulteration, and which become softened by immersion in cold water; the hardness of the coffee-berry is even retained subsequently to the charring, and is so great that by this character alone, the fragments of the ground and roasted coffee-berry may be easily distinguished from those of chicory. It consists of an assemblage of vesicles or cells of an angular form, which adhere so firmly together that they break into pieces rather than separate into distinct cells. The cavities of the cells include, in the form of little drops, a considerable quantity of essential oil, upon which the fragrance and active principle of the berry depend. The testa, or membrane presents a structure very distinct from that of the substance of the berry itself, and when once seen it cannot be confounded with any other tissue which has yet been observed entering into the adulteration of coffee. It is made up of elongated and adherent cells, forming a single layer, and having oblique markings upon their surfaces. The quantity of this membrane present, in a broken and divided state in any sample, affords, therefore, some clue to the quantity of coffee contained in it. When the coffee is roasted, the essential oil wholly disappears; partly arising from the heat, and partly from its being diffused throughout the cavities of the cells. Chicory, on the other hand, is the root of a plant; the chief bulk of the root being made up of little cells which are generally of an *elongated* form, but sometimes *rounded*; and which, unlike the cells of the coffee-berry, separate from each other with great readiness, and present appearances which, when once observed, cannot be mistaken. Chicory, owing to the absence of essential oil, readily imbibes water, and when immersed in that fluid, becomes soft, in which also it differs from the roasted coffee-berry.

Corn, deprived of its investing tunics or husks, consists of a net-work of cells, in each of which a variable number of starch granules is included.