

THE STRUCTURE OF BERMUDA GRASS COMPARED WITH THAT OF TRITICUM.

BY C. J. ZUFALL.

Because of the scarcity of European Triticum, a substitute, Bermuda grass has been imported in considerable quantities, although genuine Triticum is found growing abundantly in many sections of America, as well as in Europe. If the trade would realize that Triticum is Triticum whether gathered in Europe or in America, there would be less difficulty in securing enough for its needs. As in many other instances, we should declare our independence of Europe in obtaining our supply of this drug.

The substitute, imported under the name "Bermuda Grass," has been found mixed with Triticum and offered for sale as U. S. P. Triticum. Bermuda grass grows in Northern Africa and Southern Europe, where it is used in much the same way as Triticum.¹ It is also found naturalized in America, scattered through the fields and waste places from Massachusetts and Southern New York to Missouri, Florida, and Mexico, as well as in the West Indies and South America. In some places it is cultivated in pastures.²

The botanical origin of this adulterant is *Capriola Dactylon* (L.) Kuntze (*Cynodon Dactylon* Pers.; *Panicum Dactylon* (L.); *Digitaria stolonifera* Schrad; *Dactylon Officinalis* Vill.) The generic name, Capriola, comes from the mediaeval Latin name for the wild goat that feeds on this grass in rocky places. There are only four species in the genus, of which three are Australian, while *C. Dactylon* is widely distributed.

Some of the common names for *Capriola Dactylon* (L.) are Scotch grass, Scutch grass, Dog's-tooth grass, Indian couch grass, Bahama grass, Hundzahn, Gros Chiendent, or Chiendent pied-de-poule (French).

Capriola Dactylon is a perennial grass with short, flat leaf-blades, one to two inches long, and one to two lines wide. The blades are rigid, smooth beneath, and scabrous above. The smooth, glabrous culms are four to twelve inches tall, and erect, originating from long, creeping and branching stolons. The sheaths are glabrous or somewhat hairy, and crowded at the bases of the culms and along the stolons. The spikes are four to five in number, one-half to two inches in length, and digitate. The rachis is flat. The spikelets are one line long, one-flowered and secund.²

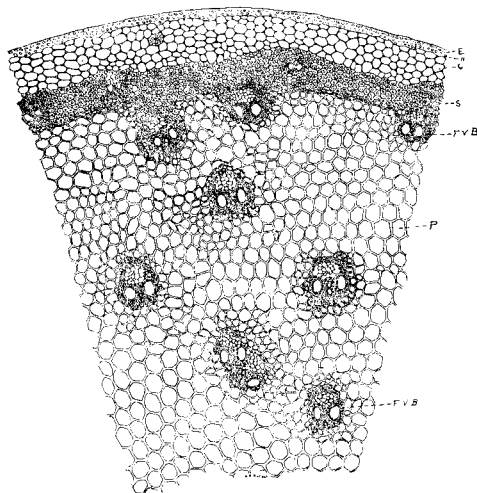
The dried rhizome of *Capriola Dactylon* is seldom less than two, and usually three millimeters or more in diameter, whereas the rhizome of Triticum is seldom more than two millimeters. The adulterant is generally hard and brittle, whereas Triticum usually is soft and pliable. Bermuda grass lacks the sweet taste of Triticum, and contains much starch.

In transverse section a hand lens or microscope shows that the structures of these two rhizomes are quite different. The epidermi beneath which are similar layers of hypodermal cells are similar. A marked difference is found in the cortex, that of Bermuda grass being about one-fourth as broad as that of Triticum. The cortex of Bermuda grass contains only one or two vascular bundles, whereas Triti-

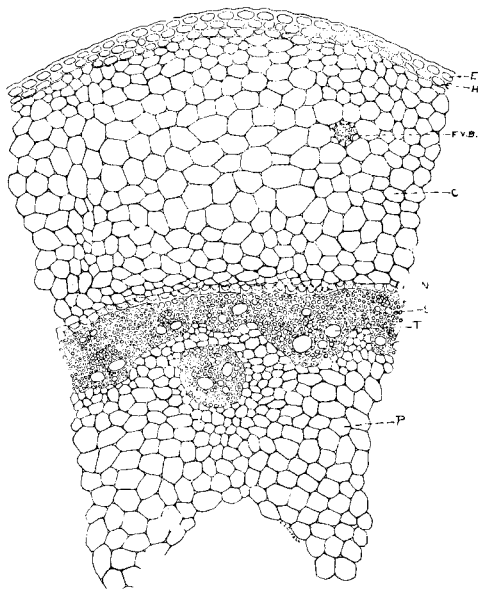
¹ Dragendorff, "*Die Heilpflanzen*," p. 85.

² Britton and Brown, "*Illustrated Flora of the United States and Canada*," Vol. I, p. 222.

cum contains six or seven. Bermuda grass has no endodermis, while in *Triticum* this layer is quite prominent, with the inner and lateral walls much thickened. The circle of bundles and the individual bundles of the one are much like those of the other. The pith of the Bermuda grass is from four to five times as broad as that of *Triticum*, and the walls of the pith cells, as well as the walls of the cells in the cortical parenchyma, are decidedly thicker than those of *Triticum*.



Agropyron repens. Transverse section of rhizome: E, epidermis; H, hypodermis; C, cortex; S, sclerenchyma tissue; P, pith; F. V. B., fibro-vascular bundle.



Capriola Dactylon. Transverse section of rhizome: E, epidermis; H, hypodermis; F. V. B., fibro-vascular bundle; C, cortex; N, endodermis; S, sclerenchyma tissue; T, trachea; P, pith.

Scattered through the pith of Bermuda grass are from thirty to thirty-five fibro-vascular bundles, while in the pith of *Triticum* there are only ten or twelve, and these are attached to the circle of sclerenchymatous fibres and bundles. In Bermuda grass the central hollow area is twice as broad as that of *Triticum*.

The powdered Bermuda grass may be identified by the presence of a large amount of starch, the thick-walled parenchyma cells and the absence of endodermal cells with the peculiar thick walls.

LIME, LIME WATER, AND LIME WATER TABLETS.*

BY ROBERT WOOD TERRY.

Lime water is not usually regarded as an important pharmaceutical preparation, but after serious thought it is seen to be one of the most important in the pharmacopoeia. Lime water is used pharmaceutically in preparing black wash and yellow wash, in the preparation of carron oil and, formerly, for preserving mucilage of acacia. If lime water is very deficient in its content of calcium hy-

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