GROWTH AND DEVELOPMENT OF KENAF, HIBISCUS CANNABINUS L., WITH SPECIAL REFERENCE TO FIBER CONTENT OF THE STEMS

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WITH the introduction of the kenaf plant, *Hibiscus cannabinus* L., into Cuba as a source of soft fiber for the manufacture of sugar bags and other related articles, the determination of the proper time for harvesting in order to obtain the greatest amount of highest quality fiber per unit of land was one of the problems encountered. Although the investigation reported here is of a preliminary nature, it offers a partial solution to the problem.

REVIEW OF THE LITERATURE

Dekker (2) and Horst (5), working in Java with kenaf, reported that higher yields of fiber were obtained if the plants were allowed to attain maturity than if they were cut and retted at some earlier stage. Horst, in his study to determine the percentage of fiber in plants harvested at different growth stages and also the percentage of fiber in "thick" as compared with "thin" stems, found that plants harvested too green (97 days after planting), which "still had all their leaves and were very full of sap", yielded 1.66 to 2% of fiber. Plants harvested at seed maturity, however, yielded 6.44%. He noted that the yield of high-quality fiber was between these two figures, probably at 4 or 4.5%.

Horst found that the percentage of fiber from air-dried "thick" stalks of a particular variety was 18.5, whereas the percentage of air-dried "slender" stalks was 33.9. He also reported that in another green variety the weight of the bark (which consisted of from 30 to 50% of fiber) constituted about a third of the weight of the stalk. Thus the fiber content of the dried stalks varied from 10 to 17%. By cutting the stalks into thirds in one experiment and into quarters in another, he found that although the lower part of the stem had the greatest amount of fiber, the middle part had the highest percentage of fiber. He advanced the suggestion that the amount of fiber increases in proportion to the square of the relative increase of the stem; therefore, by increasing the height of the plants, a considerable increase in the yield of fiber will result.

Van Gorkom (4) and Zegers Ryser (9) reported that, on the average, green stems contain 1.5 to 2% fiber, whereas El Kilany (3) states that the ratio of fiber yield to green-crop weight is from 7 to 10%. Michotte (6) reports that in Central Asia this plant yielded between 11 and 22% fiber of the dry weight of its stems.

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3Figures in parenthesis refer to "Literature Cited", p. 358.