



Histological measures of digestibility of fodder plants linked to their genetic variation

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Key words: Morphological composition, digestibility, Medicago, selection, genetic variability

1 SUMMARY

By measuring part of ligno-cellulosic tissues in the histological section of stems and of leaves with an optical microscope ruler. The biometric parameters reported were : leaves on stems or lignified tissues on non-lignified tissues, determined the population most digested by ruminants. This is, without passing by *in vivo* or *in vitro* digestibility. Photos of histological sections of stem show that genetic variations of digestibility are linked to xylem sclerenchyma proportion (lignified tissues) and to non-lignified tissues proportion (medullary parenchyma and cortical parenchyma). This proved that digestibility of stems is lower than leaves, top of the stems is more digestible than the bottom ones and perennial species are less digestible than annual ones. In addition, there is a close relationship between plant morphology (report leaves-stems) and the rate of lignified tissues and non-lignified. Comparison of non-lignified tissues to lignified ones, can be multiplied by number of bundles and shows that result is higher in *M.muricoleptis* than in *M.ciliaris*, respectfully 187.5 and 77. Therefore the method it is based on simple measurements and calculations by the optical microscope.
