

The aim of this work is the phytoecological study of the *Acacia tortilis* var. *raddiana* desert savanna in the northwestern Algerian Sahara. Sixty-seven relevés were collected for this habitat from an area extending from the northern boundary of Béchar to the southern part of Kerzaz, a latitudinal gradient of 250 km. A detrended correspondence analysis identified two communities represented by 35 and 32 relevés. Canonical correspondence analysis highlighted the topography and the nature of the substratum as the main environmental factors explaining the distribution of the two groups. The most frequent community corresponded to the *Acacia tortilis* var. *raddiana*, *Panicum turgidum* and *Foleyola billotii* association Quézel 1965. It is associated with large wadi-beds and alluvial plains. This association presents two facies: a saxicolous one characterized by *Farsetia occidentalis* and *Trichodesma calcaratum* and a sandy facies with *Kickxia aegyptiaca* and *Brocchia cinerea*. The second community corresponds to the *Acacia tortilis* var. *raddiana* and *Rhus tripartita* association Quézel 1965, typical of narrow wadi-beds with rocky substrates. The floristic composition reveals fewer taxa of tropical origin and a reduced list of characteristic species is proposed. Details of the range of the two syntaxa identified are provided. They are compared with the other *Acacia tortilis* var. *raddiana* associations described for the Algerian central Sahara.