

# RUMEX ANGIOCARPUS IN SOUTH AFRICA

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## SUMMARY

Chromosome counts of *Rumex* material from South Africa indicate that although the diploid *R. angiocarpus* ( $2n = 14$ ) may occur in that country, at least one population of the tetraploid *R. tenuifolius* ( $2n = 28$ ) has been recorded. All tetraploid plants produced angiocarpous fruits. Without additional chromosome counts the occurrence of the diploid *R. angiocarpus* can not be confirmed.

According to the monograph of the African species of *Rumex* by RECHINGER (1954), all African specimens of the *R. acetosella* complex are referable to *R. angiocarpus* Murb. Rechinger based this conclusion on earlier work by LÖVE (1941), who studied the complex species group of *R. acetosella* cytotaxonomically and distinguished within the subgenus *Acetosella* of *Rumex* the following four taxa:

<i>R. angiocarpus</i> Murb.:	$2n = 14.$
<i>R. tenuifolius</i> (Wallr.) Löve:	$2n = 28$
<i>R. acetosella</i> L. s.s.:	$2n = 42$
<i>R. graminifolius</i> Lambert:	$2n = 56.$

These taxa form an euploid series with the basic number  $x = 7$ . Löve's treatment was also adopted by HENDERSON & ANDERSON (1966) and by WILD (1955, 1968), who, accordingly, reported the occurrence of only one taxon, *viz.*, *R. angiocarpus* in southern Africa.

Dr. L. E. Codd, Chief of the Botanical Research Institute, Pretoria, South Africa, kindly arranged for the collection of a sample of seed of representatives of the *Rumex acetosella* complex. A good sample was received of a population from the Uniondale District (Cape), Langkloof, east of Camphor Station, leg. J. H. Marsh (no. 504a), collected on 26-9-1967. This sample consisted of "angiocarpous" fruits, *i.e.*, the inner perigone segments were adnate to the exocarp of the fruit (whereas they are free in "gymnocarpous" fruits). Angiocarpy of this kind is supposed to be one of the most important diagnostic characters of *R. angiocarpus*.

From the sample received from Pretoria, plants were reared in the experimental garden of the Hugo de Vries-Laboratory, which plants appeared to have a chromosome number of  $2n = 28$ . According to Löve's interpretation, these consistently *angiocarpus* plants belong to *R. tenuifolius*. The occurrence of plants with  $2n = 28$  chromosomes producing angiocarpous fruits had already been reported by Hylander (see LÖVE 1960). An investigation by STERK *et al.* (1969) in the Netherlands and adjacent Belgian territories has already indicated

the presence in the Low Countries of angiocarpous populations with  $2n = 42$  chromosomes. Obviously the diploid, the tetraploid and the hexaploid races of the *R. acetosella* complex can produce angiocarpous fruits (see STERK *et al.* 1969); gymnocarpous fruits are only known from the tetraploids and hexaploids.

Angiocarpy of the fruit is clearly not an exclusive character of the diploid taxon of the complex. The present investigation shows that *R. tenuifolius* in the sense of Löve, *i.e.*, the taxon consisting of populations with  $2n = 28$ , occurs in an angiocarpous race in southern Africa. Assuming that the "true" *R. angiocarpus* (with  $2n = 14$ ) occurs in South Africa at all, it is not the only taxon distinguished in the subgenus *Acetosella* by Löve that is found in that region. Conceivably also hexaploid angiocarpous plants may occur in southern Africa, if not all populations consist of exclusively angiocarpous tetraploids.

The question whether *R. angiocarpus*, *R. tenuifolius* and *R. acetosella* are "good" taxonomic species is still undecided, see STERK *et al.* (1969), *R. angiocarpus* was distinguished and described by MURBECK in 1891, but this author did of course not make any chromosome counts, so that Löve's idea of a correlative coincidence of angiocarpy with diploidy in the subgenus *Acetosella* can not be endorsed. *R. angiocarpus* Murb., defined as an angiocarpous element of the subgenus *Acetosella* is in fact a rather complex taxon.

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#### REFERENCES

- HENDERSON, M. & J. G. ANDERSON (1966): *Common weeds in South Africa*. Pretoria: 86–87.  
 LÖVE, A. (1941): Etudes cytogénétiques des Rumex II. *Bot. Notis.* **41**: 155–172.  
 — (1960): Taxonomy and chromosomes – a reiteration. *Fedd. Repert.* **63**: 192–212.  
 MURBECK, S. (1891): Beiträge zur Kenntnis der Flora von Südbosnien und der Hercegowina. *Lunds Univ. Årsskr.* **27**: 46–50.  
 RECHINGER, K. H. (1954): Monograph of the genus Rumex in Africa. *Bot. Notis., Suppl.* **3**: 1–114 (see especially p. 6–9).  
 STERK, A. A., W. M. VAN DER LEEUW, P. H. NIENHUIS & J. SIMONS (1969): Biotaxonomic notes on the Rumex acetosella complex in the Netherlands. *Acta Bot. Neerl.* **18**: 597–604.  
 WILD, H. (1955): *Common Rhodesian Weeds*. Salisbury (S. Rhod.): Fig. 19.  
 — (1968): *Weeds and aliens in Africa* Inaugural Lecture Univ. College of Rhodesia: 13.