

The procedures used were based on those described by Martha Newton (Newton, 1989) modified as described below. All of the counts were done using mitotic preparations of growing shoot tips.

The living specimens were placed in small jars, liberally sprayed with water, sealed and allowed to grow for at least two weeks to ensure that there were plenty of growing shoot tips. All specimens rapidly produced etiolated shoots which proved ideal for study.

Initially the shoot tips were harvested by cutting lengths of shoot 5–10 mm long which were fixed overnight in 3:1 absolute alcohol/glacial acetic acid then stained for 3–4 hours in lacto-propionic orcein prior to excision and squashing of the growing tips. After staining, around 0.5 mm of growing tip was excised in a drop of 45% acetic acid and squashed in the usual way.



△ *Bryum marratii*. Des Callaghan

Some chromosome counts for the genus *Bryum*

As **Martin Godfrey** reports, the British members of the genus *Bryum* have surprisingly few published chromosome numbers and, in correspondence with David Holyoak, it was decided to try for counts on a few of the rarer species. Des Callaghan was able to supply living specimens of *B. marratii* and *B. dyffrynense* so these were used as target species to make the counts.

I found that using this basic technique did not produce reliable, or indeed any counts in many instances. To save the scarce material, I experimented on *B. pseudotriquetrum* which I already had in cultivation (and for which $n=10$ has been published in Smith, 2004) and on freshly collected and cultivated *B. rubens* (which does not have a published count). I found that pre-treatment in 8-hydroxyquinoline at 4 °C for 4 hours followed by staining in lacto-propionic



Bryum chromosomes

◁ *Bryum dyffrynense*. Des Callaghan

Table 1. Results of chromosome counts

Taxon	Site	Grid ref.	Date collected	V.-c. no.	Collected & determined by	Chromosome count
<i>B. pseudotriquetrum</i>	Chasewater	SK0008	29 Dec 2011	39	M.F. Godfrey	10
<i>B. rubens</i>	Nr Broughton Pool	SJ7930	2 Apr 2012	39	M.F. Godfrey	10 (new count)
<i>B. marratii</i>	Ynyslas	SN6092	10 Jan 2012	46	D.A. Callaghan	10 (new count)
<i>B. dyffrynense</i>	Phyllack Towans	SW5639	12 Mar 2012	1	D.A. Callaghan	10 (new count)

orcein for 24 hours produced excellent results, so this method was used on *B. marratii* and *B. dyffrynense*.

Results

Good counts were obtained for all of the species; these are summarized in Table 1. Perhaps not surprisingly, the three new counts reflected what seems to be the underlying chromosome number for the genus, $n=10$, and it was pleasing to confirm this.

As indicated above, the published counts for this genus are based on $n=10$ with multiples of this being found in some species, indicating a level of polyploidy. An unusual exception to this however is *B. warneum* which has a published count of $n=15$ (Smith, 2004). David Holyoak tells me this is based on a gathering from

Lancashire. This is rather puzzling as there is no obvious mechanism to arrive at this result, unless the base haploid number for *Bryum* is $n=5$ and *B. warneum* is actually a triploid – however, if this were the case one would perhaps have expected some counts of $n=5$ to have turned up somewhere. I would very much welcome fresh material of *B. warneum* from elsewhere in Britain to repeat the count.

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References

- Newton, M.E. (1989). *A Practical Guide to Bryophyte Chromosomes. British Bryological Society Special Volume No. 2.* British Bryological Society.
- Smith, A.J.E. (2004). *The Moss Flora of Britain & Ireland*, 2nd edn. Cambridge University Press.