Key to estuarine and marine species within the genus *Ulothrix* in Britain

Based on Lokhorst (1978) as simplified by Fuller (1982).

1,	(A)	Filaments with a thick, smoothly surfaced filament wall, uncontaminated by microparticles. Local inflation of the cell wall occasionally present	2
	(B)	Filaments with a roughly surfaced wall caused by microparticles embedded in mucilage. Filaments breadth 15-38µm	*Ulothrix flacca*
	(C)	Filaments with a firm, thin cell wall, mostly uncontaminated by microparticles. Local swelling of the cell wall lacking. Filament breadth less than 18µm	3
2.	(A)	Filament breadth 20-65µm, usually greater than 30µm. Filament wall of constant thickness. Filament tightly curled in the reproductive state. Filament wall hydrophobic.....	*Ulothrix speciosa*
	(B)	Filament breadth 14-29µm. Filament wall thickness variable. Filament not tightly curled when reproductive.....	*Ulothrix palusalsa*
3.	(A)	Filament breadth 7.5-12µm. Chloroplast girdle usually open, not always reaching transverse walls in young filaments. Cell length:breadth ratio 0.61 to 1.51, larger in young filaments.....	*Ulothrix subflaccida*
	(B)	Filament breadth 9-16µm. In the absence of zoosporogenesis or gametogenesis secondary rhizoids frequently present.....	*Ulothrix implexa*

The species of *Ulothrix* recognised in different recent check-lists and floras vary from list to list as shown in the table below. Species may be united by one author and reinstated by later ones. Therefore it is suggested that all five species identified above are recorded in field collections pending a more stable taxonomy for the genus.

	Parke & Dixon 1968	Parke & Dixon 1976	South & Tittley 1986	Burrows 1991	Guiry in Howson & Picton 1997	Hardy & Guiry 2003
U. flacca (Dillwyn) Thur. in Le Jol.	X	X	X	X	X	X
U. pseudoflacca Wille	X	X				
U. implexa (Kutz.) Kutz.	X			X	X	X
U. palusalsa Lokhorst			X		X	
U. speciosa (Carm. ex Harv. in Hook.) Kutz.	X		X	X	X	X
U. subflaccida Wille	X	X	X			X

Since Parke & Dixon (1976) *U. pseudoflacca* has been regarded as part of *U. flacca*. *U. palusalsa* does not appear until 1986 because it was a new species described by Lokhorst in 1978.

Martin Wilkinson
10 April 2006

ULOTHRIX SPECIOSA

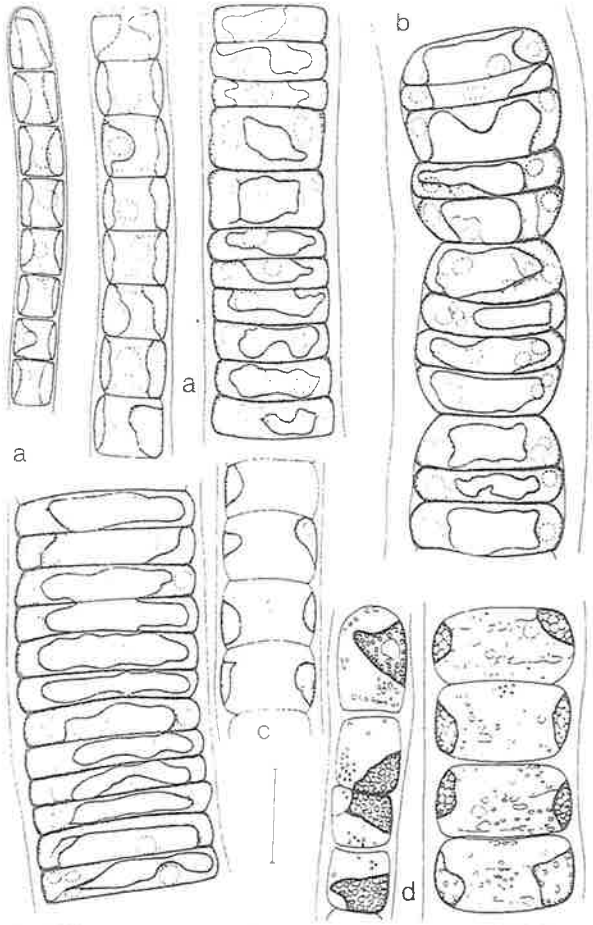

Fig 1 *Ulothrix speciosa* — a vegetative filaments, b vegetative filament with a sheath-like habit and cells arranged in groups, c vegetative filament with an *Uronema confusa*-like growth habit, grown at lower salinity, d vegetative filaments, grown in adverse conditions, with chloroplasts studded with assimilates

ULOTHRIX FLACCA

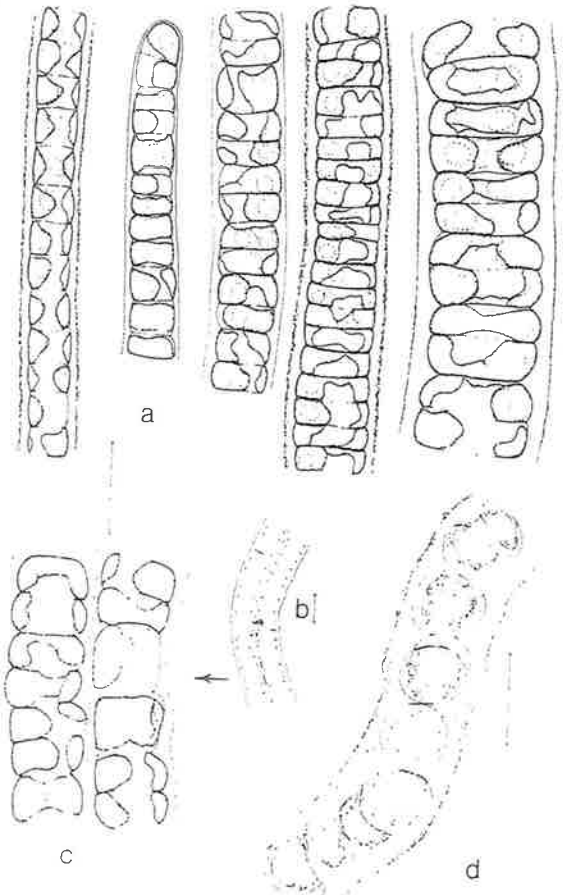

Fig 6 *Ulothrix flacca* — a vegetative filaments. The roughly surfaced threads are from natural origin, b coalescence of filaments, c portion of coalesced filaments in detail, d vegetative filament, after prolonged period of adverse conditions

ULOTHRIX PALUSALSA

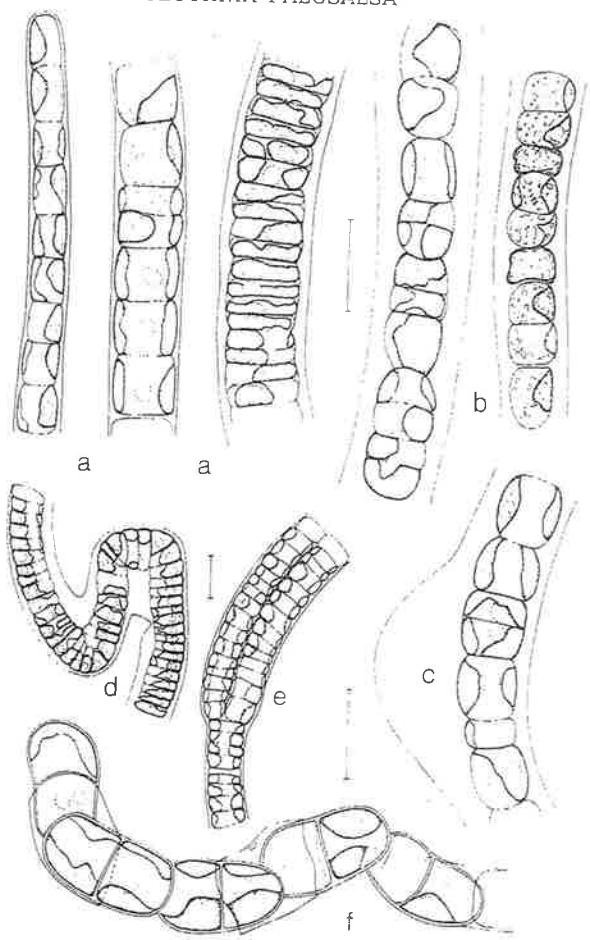

Fig 11 *Ulothrix palusalsa* — a vegetative filaments, b filaments with *Gemmella*-like growth habit, c local swelling of the cell wall in a vegetative filament, protruding in one direction, d curved vegetative filament with pronouncedly inflated cell wall, which may finally result in a disorganization of the cell row, as drawn for *Ulothrix speciosa* in fig. 5a, e vegetative filament with biseriate cell row, f initiation of fragmentation of a filament. Note the cylindrical reminants of the parent cell walls, wrapping the daughter cells

ULOTHRIX IMPLEXA

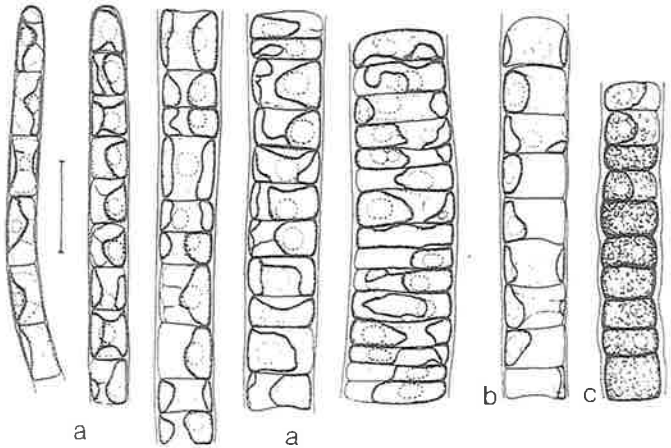

Fig 15 *Ulothrix implexa* — a vegetative filaments, b filament grown at low salinity. Note the less

ULOTHRIX SUBFLACCIDA

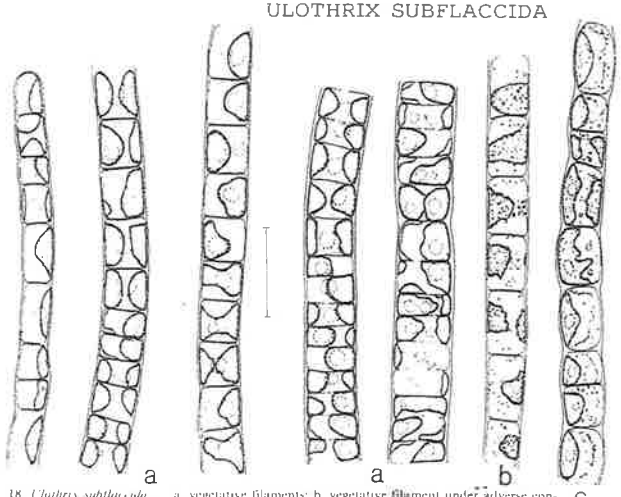

Fig 18 *Ulothrix subflaccida* — a vegetative filaments; b vegetative filament under adverse conditions. Note the withdrawal of the chloroplast in the individual cells, c vegetative filament with slightly

MARINE AND BRACKISH WATER ULOTHRIX SPECIES

Scale bar on each figure = 20 µm