

A NEW SPECIES OF *SPIRULINA* (= *ARTHROSPIRA*) *MAHAJANI* MAHAJAN FROM KHARGONE, MADHYA PRADESH¹

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¹Accepted November 2001

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Spirulina (= *Arthrospira*) has received great commercial impetus in recent times and this has resulted in the publication of many papers on the physiology, methods of cultivation, mass production etc. Most publications generally refer to this alga as *Spirulina platensis*. Desikachary and Jeeji Bai (1996) have grouped the various strains and natural samples of this alga under four distinct taxonomic entities and assigned them to 1. *A. indica*, 2. *A. maxima*, 3. *A. massartii* and 4. *A. platensis*. The genus *Spirulina* is characterized not only by coiled trichomes, but also by differences in the coiling pattern. Besides the usual differences in trichomes and cell dimensions, the cell morphology provides a very important consistent and reliable feature which is observed in all the four groups. Groups 1 and 4 show a greater degree of attenuation than groups 2 and 3. The Khargone specimen belongs to group 4, but it differs from its other strains by the narrower trichomes with calyptrate end cells. The Khargone material shows a calyptra and somewhat narrower trichomes and is hence not included in this group. On account of its separate entity, it has been assigned a new name *Spirulina mahajani* Mahajan.

Key words: *Spirulina*, *Arthrospira*, natural samples, identification, taxonomic criteria, new report, blue-green algae

The planktonic alga described was collected from a temporary pond at the Government P.G. College, Khargone (21° 45' N, 75° 37' E, 250.38 m above msl) during November-December, 1990, mixed with *Oscillatoria*, *Hydrodictyon*, *Sirogonium*, *Spirogyra* and diatoms. The depth of the pond was 90 cm. Turbidity of the stagnant water was 20 NTU, pH 7.6 and water temperature was 28.3 °C, when the algal sample was collected at 1400 hrs.

Trichomes 4.9-5.6 µm broad in the middle and 3.4-5.1 µm at the ends; Cell length 2.1-3.6 µm; end cells rounded, non-capitate but calyptrate; number of coils 3-5; coil diameter 33-44 µm in middle and 33-39 µm at the ends; Pitch of coil 39-99 µm; percentage attenuation 5-20 (Fig. 1).

Material collected from Khargone pond differs from all the known species of *Spirulina*. Desikachary and Jeeji Bai (1996) have emphasized on a separate entity. Hence, the material is a species new to science. The epithet *mahajani* is suggested (after the name of author who collected the material) for this new species (Table 1).

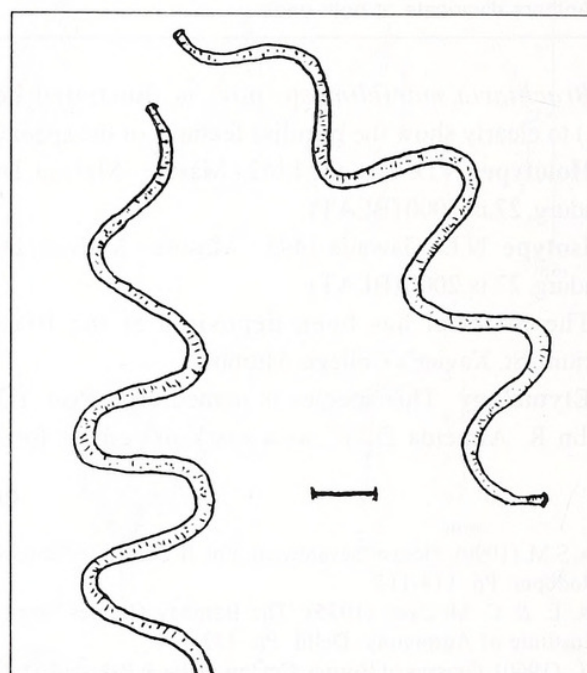


Fig. 1: Regularly coiled, narrow trichomes with calyptrate end cells (Scale: 20 µm)

Table 1: Comparison of dimensions of *S. mahajani* sp. nov. with allied species of *Spirulina* (= *Arthrospira*).
[All dimensions are in µm] (Desikachary and Jeeji Bai 1996)

S. No	Strain/sample	No. of coils	Coil diameter		Pitch of coil	Trichome diameter		% attenuation	Cell length	End cell
			mid	end		mid	end			
1.	<i>Arthrospira platensis</i>	-	26-36	-	43-57	6.0-8.0	-	Slight	2.0-6.0	Rounded
2.	<i>Arthrospira platensis</i> var. <i>californica</i>	5-12	33-44	22-33	66-77	7.8-9.0	5.6-7.0	20-35	3.4-4.2	Broadly rounded
3.	<i>Spirulina mahajani</i> sp. nov.	3-5	33-44	33-39	39-99	4.9-5.6	3.4-5.1	5-20	2.1-3.6	Rounded/calyptrate

The material and slide have been deposited with the Botany Department, Government P.G. College, Khargone for record. Regn. No. PGDB 390.

I extend my sincere thanks to Dr. P.L. Jain, Principal and Prof. P.R. Paliwal for encouragement and facilities.

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Mahajan, S K. 2004. "A new Species of Spirulina (= Arthrospira) Mahajanimahajan from Khargone, Madhya Pradesh." *The journal of the Bombay Natural History Society* 101, 294–295.

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