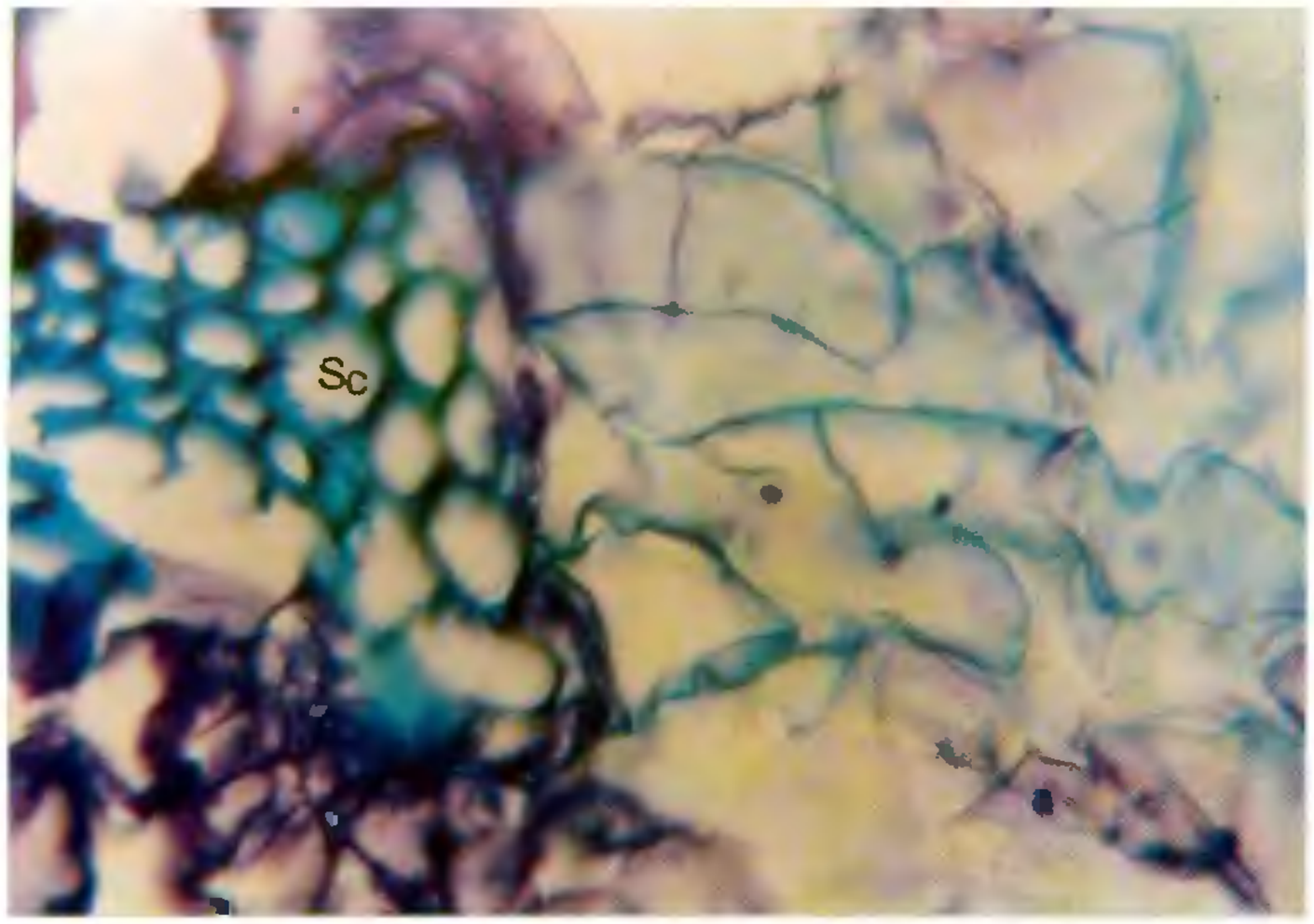

Figure 3. Part of the pericycle enlarged to show the proliferation from sclerenchyma fibres (× 400).

Figure 3 depicts the *in vitro* differentiation of sclerenchyma fibres of pericycle by undergoing the gradual delignification as evident by the metachromatic staining of toluidine blue.

The sclerenchyma fibres of the pericycle were hitherto considered as only mechanical in function due to their thick lignified wall. The present study reveals that these cells can undergo *in vitro* differentiation like parenchyma in *Cissampelos pareira*.

Enzymatic *in vivo* delignification has been found in the brachysclereids of *Chaenomeles* sp. (Quince) fruit during ripening[7]. However, there is no report of *in vitro* delignification and proliferation of sclerenchyma fibres.

The reversal in the form and function of sclerenchyma fibres in *in vitro* conditions extends the concept of totipotency to these fibres, just as in parenchyma cells.

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Comments on 'Fertile plants regenerated from mesophyll protoplasts of cold tolerant rice'

I am writing about the article 'Fertile plants regenerated from mesophyll protoplasts of cold tolerant rice' (*Curr. Sci.*, 1995, **68**, 755–758) by J. N. Gupta, Hyderabad and S. N. Gupta, Gorakhpur. J. N. Gupta worked as project fellow in a DBT-funded project in my laboratory on suspension protoplasts of rice and based on the work, he submitted a dissertation to the Gorakhpur University under the supervision of S. N. Gupta and was awarded the Ph D degree.

While J. N. Gupta was working in my laboratory, I and my colleague, Mr A. Pattanayak, were working on plant regeneration from mesophyll protoplast of rice and having succeeded in the same, we published a paper in *Bio/Technology* (1993, **11**, 90–94). J. N. Gupta now claims in the above-mentioned *Current Science* paper to have regenerated fertile plants from RCPL 1–1C and Meghalaya 1 and the work was supposed to have been done at Gorakhpur University in S. N. Gupta's laboratory. On verification, S. N. Gupta categorically denied that the work was ever done in his laboratory, because facilities for such work do not exist in his laboratory even today.

S. N. Gupta (Gorakhpur) also denied having consented to be a co-author in the paper through a letter. As such, J. N. Gupta (Hyderabad) neither worked on mesophyll protoplasts in my laboratory nor at the University of Gorakhpur. He has, in fact, plagiarised our work on mesophyll protoplasts. He has even used

some of our photographs.

Further, there is nothing new in the methodology and the compositions of protoplast culture and the regeneration media are substantially the same as reported by us in *Bio/Technology*. Even the varieties are the same and one of them, viz. RCPL 1–1C is an advance breeding line developed by us.

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J. N. Gupta replies:

The allegation of H. S. Gupta that I had worked on only cell suspension protoplast of rice and based on this work I submitted my Ph D thesis is totally baseless. I had worked on several other aspects, i.e. callus induction, development of fast-growing cell suspension, regeneration of plants from mesophyll protoplasts, protoclonal variations, somaclonal variations and heritability of those variations for my Ph D thesis at ICAR Research Complex for NEH Region, Barapani, Meghalaya, under the supervision of S. N. Gupta (Gorakhpur) and cosupervision of H. S. Gupta (Barapani, Meghalaya). The same work was submitted for Ph D degree at Gorakhpur University, Gorakhpur. Though H. S. Gupta (Barapani, Meghalaya) withdrew himself as cosupervisor just one day before submission of my Ph D thesis, he was fully aware of the complete content compiled for the thesis.

The development protocol of plant regeneration from mesophyll protoplasts of rice is part of my Ph D thesis work which has been submitted in 1992 before publication of H. S. Gupta and A. Pattanayak's paper (*Bio/Technology*, 1993, **11**, 90–94). This system has been successfully repeated by me at Biotechnology Centre, Punjab Agricultural University, Ludhiana (J. N. Gupta, *Rice Biotech. Quart.*, 1993, **16**, 2–3; J. N. Gupta *Rice Biotech. Quart.*, **23**, 19–21) and Department of Biotechnology, Directorate of Rice Research, Hyderabad (N. P. Sarma *et al.*, National Rice Biotech. Network, 4th Annual Meeting, Pune, 1995, 16–17).

The reported protocol for mesophyll protoplast to plant system in rice (J. N. Gupta and S. N. Gupta, *Curr. Sci.*, 1995, **68**, 755–758) is reproducible and entirely different from H. S. Gupta and A. Pattanayak's protocol published in *Bio/Technology* (1993, **11**, 90–94). However, H. S. Gupta and A. Pattanayak's protocol contains a lot of conflict and doubts about its reproducibility (J. N. Gupta, *Rice Biotech. Quart.*, 1993, **16**, 2–3; G. C. Ghosh Biswas *et al.*, *Plant Cell Reports*, 1994, **14**, 528–532).

Moreover, the following points in H. S. Gupta's publications indicate ambiguity on his claim on mesophyll protoplast to plant system.

(i) Seven per cent mannitol in CPW salts is unable to maintain the viability of mesophyll protoplasts of RCPL 1–3C. However, H. S. Gupta and A. Pattanayak (National Group Meeting on Rice Biotechnology, Hyderabad, 9–10 September 1991, 20–22) have reported obtaining sustained divisions and callus formation from mesophyll protoplast of the said genotype.

(ii) Uses of 13% mannitol in CPW salts (just double concentration) for maintaining the viability of mesophyll protoplast of the same genotype in another report (*Bio/Technology*, 1993, **11**, 90–94) indicate their unawareness on the said system.

(iii) The 0.5 M glucose with 0.15% agarose in reported N6 medium is unable to maintain the viability of mesophyll protoplasts of reported genotypes (*Bio/Technology*, 1993, **11**, 90–94). However, they have reported regenerating plants from the same mesophyll protoplasts.

(iv) There is no reaction by H. S. Gupta on my comments raised in *Rice Biotech. Quart.*, 1993, **16**, 2–3 (two years completed) on non-reproducibility of his protocol, differences of 0.2 M glucose in two cultural procedures and having tried to compensate those differences by 0.15% agarose, there is doubt about H. S. Gupta's expertise on the said system.

(v) Failure of H. S. Gupta to fulfil his commitment to clear the mentioned doubt in *Bio/Technology*, 1993, **11**, page 93 para 4 and 5 through genetic transformation is enough evidence to say that H. S. Gupta and A. Pattanayak have not worked on the said system. H. S. Gupta has misused his position and published my developed protocol of mesophyll protoplast to plant system in rice in *Bio/Technology*, 1993, **11**, 90–94.

After repetition of the said system at a different laboratory, I have offered the said system for genetic transformation to other groups (J. N. Gupta, *Rice Biotech. Quart.*, 1995, **23**, 19–21). This indicates that the mesophyll protoplast to plant system in rice has been developed by me.

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No response was received from S. N. Gupta (Gorakhpur) despite several reminders.

– Editors