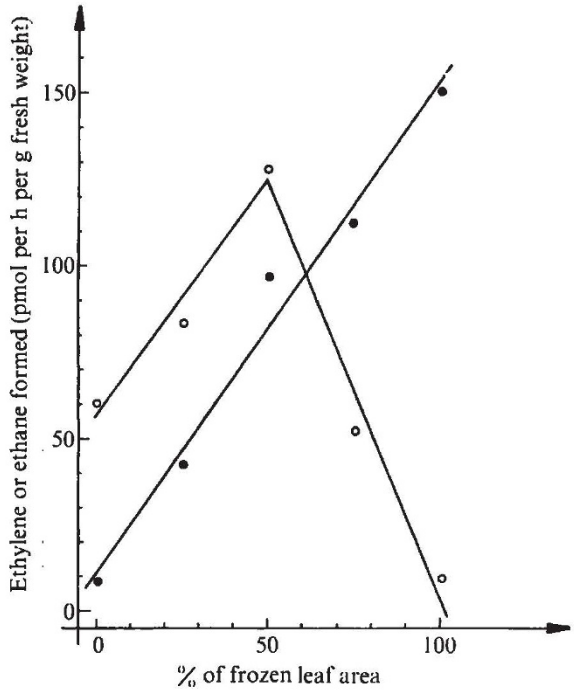

Fig. 1 Dependence of ethylene (○) and ethane (●) production on the percentage of frozen leaf area. Point freezing and incubation were achieved as described in the text. The points of the lines represent the mean of five experiments.

The influence of freezing on ethylene production seems to be more complex. Up to a certain extent of point freezing (in our case 50% of frozen leaf disk area), ethylene production increased after point freezing in spite of the decrease of unfrozen leaf area. When 50% of leaf disk area was frozen, further point freezing severely decreased ethylene production to an almost negligible amount. Assuming a K_m for O_2 of 0.2% for ethylene synthesis[4], the decrease of ethylene production and the concomitant increase of ethane production cannot be attributed to oxygen depletion as the result of an increased oxygen consumption after point freezing. This can be concluded from the observation that pressed leaf disks of 100 mg fresh weight consume about 1.6 μmol of O_2 per 2 h, representing 8% of the total amount (20.0 μmol) of O_2 available. From the above results we conclude that ethylene formation—in contrast to ethane formation—occurs in the leaf area surrounding the frozen parts of the leaf, representing a wound response of the non-decompartmentalised, but physiologically perturbed[5,6] cells, adjacent to the decompartmentalised (killed) cells.

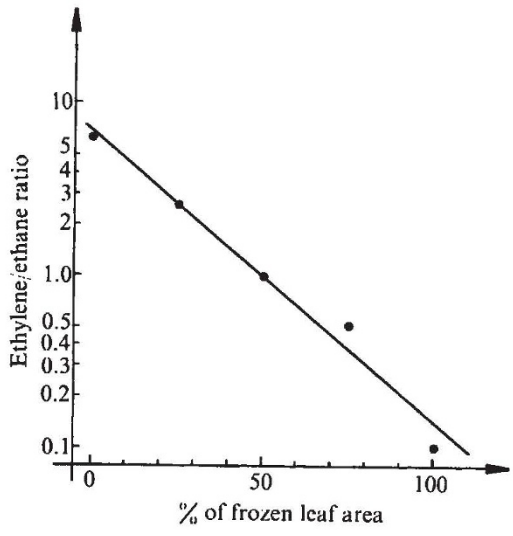

Fig. 2 Dependence of the ethylene to ethane ratio on the percentage of frozen leaf area. Point freezing and incubation were achieved as described in the text. The points of the lines represent the mean of five experiments.

If the percentage of the decompartmentalised tissue was increased, the non-decompartmentalised, but perturbed tissue was reduced, this being observed as a decrease in ethylene production.

The physiological role of the stimulation of ethylene production after wounding can be seen in the induction of wound responses, for example, the accumulation of phenolic compounds[7]. It is thus interesting that injury-related biosynthesis of an aromatic phytoalexin (phaseollin) in *Phaseolus vulgaris* has also been described to be dependent on living tissue adjacent to the injuries[8]. Ethane production, on the other hand, does not depend on intact tissue but rather on cellular disorder and loss of compartmentalisation, for the highest production rates are obtained with 100% frozen leaf area. Because of this independent behaviour of ethylene and ethane production, two different pathways can be assumed for their biosynthesis.

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Errata

In the article "Significance of impulse activity in the transformation of skeletal muscle type" by S. Salmons and F. A. Sréter (*Nature*, **263**, 30; 1976), the tenth line from the bottom of the first column on page 33 should read . . . soleus muscles which had received stimulation showed light- . . . and not as printed.

In the article "Opposing effects of cyclic AMP and cyclic GMP on protein phosphorylation in tubulin preparations" by I. V. Sandoval and P. Cuatrecasas (*Nature*, **262**, 511; 1976) the *p*H value given in the second line of the legend to Table 1 should read *p*H 6.75 and not 7.65 as printed.