Table 2. Composition of amino acids of *Saccharomyces cerevisiae* of palm wine in comparison to FAO standard.

Amino acids	Amino acids in g/100 g of protein	
	*S. cerevisiae** palm wine	Recommended** FAO standard
Lysine	7.7	4.2
Methionine	1.0	2.2
Alanine	5.6	—
Valine	4.8	4.2
Histidine	1.6	—
Isoleucine	4.0	4.2
Phenylalanine	4.0	—
Leucine	7.0	4.8
Tyrosine	2.0	—

*Amino acid composition of palm yeast is similar to that of *C. utilis* and soybean[9,10].
**Cited from Prior *et al.*[9].

Table 3. Effect of MNNG treatment on protein, biomass and thiamine content of *Saccharomyces cerevisiae* of palm wine.

Culture	Protein (%) dry wt	Biomass in g/g glucose/l	Thiamine µg/g dry wt
Original isolate[a]	47 ± 3.0	0.44 ± 0.01	180 ± 0.5
MNNG-treated culture[b]	47 ± 3.0	0.46 ± 0.01*	540 ± 1.0*

[a]Mean of 5 individual experiments carried out in duplicates.
[b]Mean of 20 samples isolated after MNNG treatment.
*Significant at 5%.

comparable to that of FAO standard[9], *C. utilis*[9] and soybean[10] (Table 2). Therefore, this strain of yeast could be used as feed supplement and as a substitute for soybean meal.

MNNG treatment resulted in 25% survival of the cells. Twenty colonies which were isolated and examined showed no change in its protein content (i.e. 47%). However, the biomass of these cultures increased by 0.02/g sugar/l (from 0.44 to 0.46 g) which was statistically significant. The thiamine content also showed a three-fold increase (from 180 to 540 µg/g dry wt of cells) (Table 3).

This new isolate of *S. cerevisiae* may serve as a good nutritional source for food/feed purposes. The culture has been deposited at the National Collection of Industrial Microorganisms, NCL, Pune, India (Acc. No: 3558).

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Effect of uniconazol on transpiration of excised soybean leaves

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The synthetic plant growth-regulator uniconazol decreased transpiration rates in soybean. An analysis of transpiration decline curves reveals that uniconazol reduced the transpiration rate by decreasing stomatal transpiration through partial stomatal closure.

It has been reported earlier[1-3] that synthetic growth-regulators like morphactins, benzothiadiazoles and ethephon are effective in controlling transpiration in sesame, growing under sub-optimal water irrigation. Uniconazol, a new synthetic plant growth-regulator, acts as antigibberellin and is known to inhibit excessive vegetative growth in plants[4,5]. Information available about its role in transpiration in plants is meagre and hence an attempt has been made in this study to understand the role of uniconazol.

The experiment was conducted during the 1988 *kharif* season. The three genotypes of *Glycine max* L., viz. *monata*, *macs-13* and *gaurav* served as experimental materials. The plants were raised in 30 cm earthenware pots filled with alkaline calcareous soil. Fifty-five days after sowing, the plants received soil application of 100 ml of 2 ppm of uniconazol (200 µg/pot), and untreated plants served as control. This concentration was selected after preliminary trials. Treatment combinations were replicated thrice. Transpiration of untreated leaves and those treated with uniconazol was measured 60 days after sowing according to the method described earlier[2,6]. To derive the transpiration decline curve, the decline of logarithm of the reduced fresh weight was plotted on the ordinate and the time (in minutes) on the abscissa. Waisel *et al.*[6] showed that analysis of stomatal response by this method is useful for comparison of stomatal responses of leaves of different physiological and ecological constitution.

Figure 1*a* reveals that uniconazol decreased transpi-

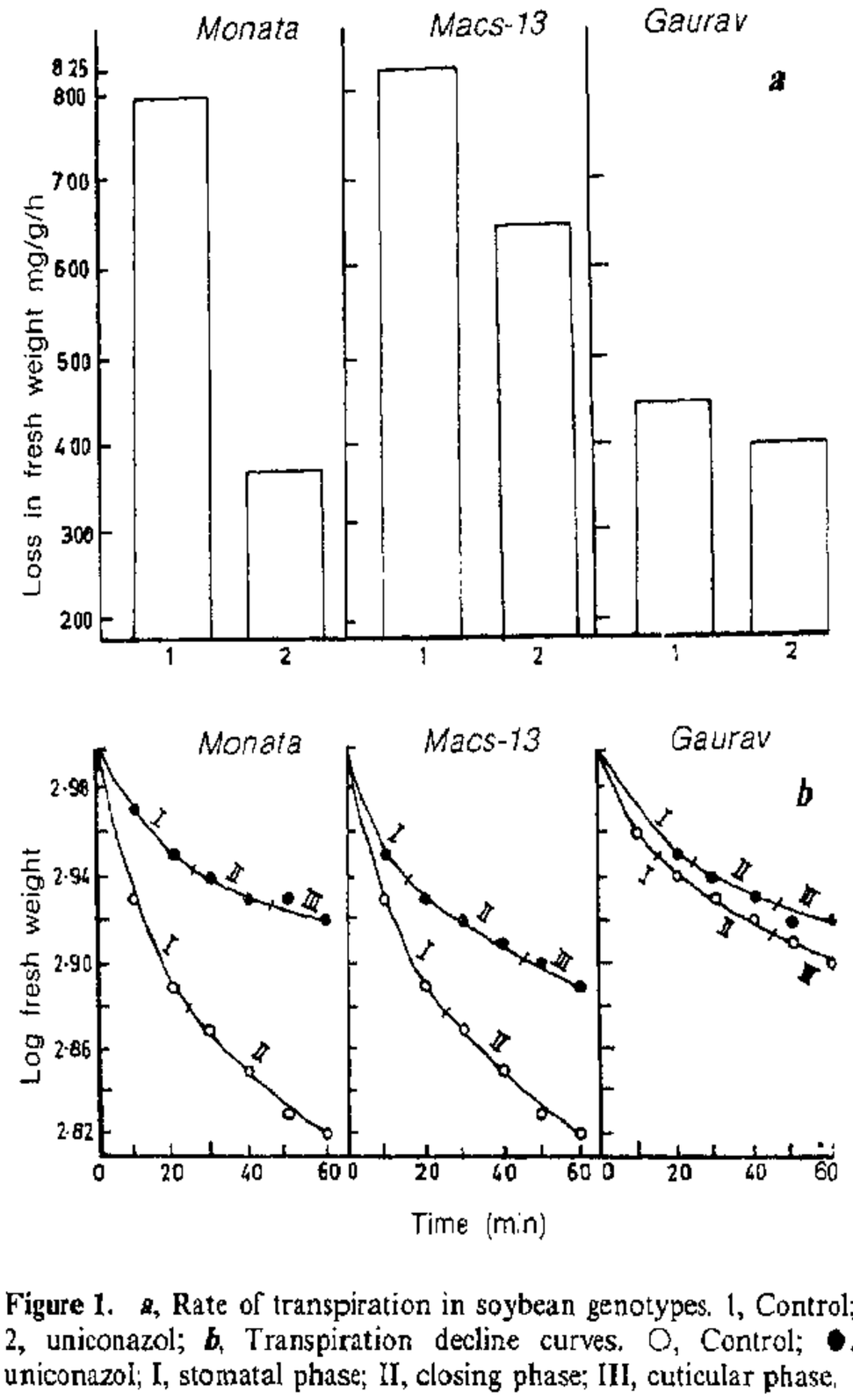

Figure 1. *a*, Rate of transpiration in soybean genotypes. 1, Control; 2, uniconazol; *b*, Transpiration decline curves. ○, Control; ●, uniconazol; I, stomatal phase; II, closing phase; III, cuticular phase.

ration rates in all the three genotypes of soybean compared to their respective untreated controls. The decrease in rates was of the order of 53, 21 and 10% in *monata*, *macs-13* and *gaurav* respectively. An analysis of the transpiration decline curves shows predominance of stomatal and closing phases in control of *monata* and *macs-13* whereas the cuticular phase appeared in all the treated plants of all the genotypes and control of *gaurav* (Figure 1*b*). It is apparent that uniconazol reduced the transpiration rate by decreasing the magnitude of stomatal transpiration through partial stomatal closure and hence exhibited antitranspirant-like activity. Recently Santakumari and Fletcher[7] reported that triazoles partially close stomata in isolated epidermal strips of *Commelina benghalensis* L.

Since most research has been aimed at controlling stomatal aperture with the ultimate objective of maintaining a favourable internal water balance[6], the use of uniconazol may prove to be useful for enabling plants to withstand drought condition by preventing water loss, and keeping a high internal water balance. This view is supported by the fact that a related triazole-paclobutrazol-treated plants showed high water potential compared to control[8]. Further, it is noted that the use of PMA as an antitranspirant does not seem to be safe, since it is poisonous on many enzymatic systems[9] and drastically affects the chlorophyll content[6]. Hence it is apparent that the use of plant-growth regulators like uniconazol as antitranspirant holds great promise and make plants suitable for dryland cultivation without any adverse effects on the plants.

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Amino acid carbohydrate transformations in adult *Setaria cervi* females

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Adult *Setaria cervi* females were able to incorporate exogenous U-^{14}C-glucose into proteins and U-^{14}C-chlorella protein hydrolysate into glycogen. Enzymes involved in this transformation were detected in crude homogenates of the worms. The activities of L-glutamate oxaloacetate transaminase (EC 2.6.1.1), L-glutamate pyruvate transaminase (EC 2.6.1.2) and L-glutamate dehydrogenase (EC 1.4.1.3) were around 8660 ± 114; 12600 ± 391 and 0.27–0.90 nmol/min/mg protein respectively.

VERY few reports are available on the relationship between amino acids and carbohydrates in filarial group of nematodes[1,2]. We had earlier described a cell-free system for protein biosynthesis in a bovine filarial nematode *Setaria cervi* adult females[3]. This paper reports that adult *S. cervi* females could form glycogen from a mixture of amino acids and proteins from glucose.

The methods for collection, incubation and preparation for enzymes of *S. cervi* adults have been described elsewhere[4]. The adult *S. cervi* females were collected