

Letter to the Editor

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Sir,

Prick testing for Aspergillus

Aspergillus species have been included in the prick test battery of most allergists for very many years. Since the work of Pepys (1969) most allergists have tended to specify *Aspergillus fumigatus*. However, Mullins, Harvey & Seaton (1976) have suggested that there is no significant difference between the individual subspecies when regarded from the viewpoint of eliciting immediate reactions. The established commercial channels supply *Aspergillus fumigatus* (Dome Division of Miles Laboratories) and *Aspergillus fumigatus*, *Aspergillus niger* and *Aspergillus terreus* (Bencard). When E. Merck introduced prick testing solutions, the extract made available was *A. terreus*.

J. Mullins (1978, personal communication) suggested that this was the wrong decision, stating that *A. fumigatus* and not *A. terreus* is the commonest subspecies in this country, and therefore, likely to be most antigenic. Most late reactions are said to be associated with *A. fumigatus* and, therefore, this should be the test substance (Pepys, 1969).

Accordingly, it was decided to make a comparison between *A. terreus* and *A. fumigatus*, using Merck prick test extract for *A. terreus* and an extract from Allergopharma, an associated company, for *A. fumigatus*. These are aqueous allergen extracts containing 50% glycerin and preserved in 0.4% Phenol, with their strength expressed in PNU. The extract for *A. terreus* was 5,000 PNU/ml and *A. fumigatus* 10,000 PNU/ml.

Patients attending the inhalant allergy clinics at the Royal Berkshire Hospital, Reading and the Newbury District Hospital were routinely tested for both antigens using the modified prick test (Pepys, 1975). One hundred and sixty-seven consecutive patients with diagnoses of asthma—both perennial and seasonal—rhinitis and hay fever were tested. Eleven positive tests were recorded (6.6%). Weal sizes were transposed to paper by the Sellotape transfer method and counted using a microscope and a millimetre square grid. Weal sizes recorded are listed in Table 1. From this it may be seen that when the sizes of the reactions are compared using a paired 't' test, the mean weal diameter of *A. terreus* is 13.81 mm and for *A. fumigatus* 4.45 mm. This difference is significant at $P=0.05$. All patients who had asthma had a precipitin estimation performed. No positives were recorded. No patients reported any other than an immediate response.

If, as stated by Pepys, atopy equals positive skin tests, then it would appear that *A. terreus* is better at eliciting significant responses than *A. fumigatus*.

Figure 1 shows patterns produced on isoelectric focussing of *A. fumigatus*, *A. terreus* and *A. niger*. Protein bands focussing at the same isoelectric point are clearly seen with each of the three subspecies of *Aspergillus*, suggesting common protein

Table 1. Weal sizes recorded

Name	Subspecies	Weal size (mm)
AG	<i>T</i>	10
	<i>F</i>	0
EC	<i>T</i>	4
	<i>F</i>	11
BH	<i>T</i>	13
	<i>F</i>	4
JS	<i>T</i>	5
	<i>F</i>	0
RK	<i>T</i>	14
	<i>F</i>	4
NL	<i>T</i>	24
	<i>F</i>	20
HB	<i>T</i>	22
	<i>F</i>	14
SS	<i>T</i>	12
	<i>F</i>	18
CO	<i>T</i>	10
	<i>F</i>	8
HV	<i>T</i>	13
	<i>F</i>	6
JG	<i>T</i>	25
	<i>F</i>	18

T = *A. terreus*; *F* = *A. fumigatus*.

bands: no consistent differences are detectable by this process. However, if comparison is made with the IEF pattern derived from a different species of fungal spore, different protein bands are clearly visible. The pattern from *Trichophyton* is shown. Three consistent differences occur in the protein bands of *Trichophyton* and *Aspergillus*. These tend to be proteins whose pI values are relatively high, or low.

We have no evidence as to whether late reactions can occur to *A. terreus* on this very limited study, nor have we looked at the relationships which other subspecies such as *A. niger* have to the two we have examined. This study used solutions which were of different PNU values and Huggins & Brostoff (1979) report variation in weal size with increasing dilution. However, his work was not specifically directed to solutions of the strength employed by us, but rather concerned the effects of extreme dilution.

Since completing this study, a patient with asthma has been seen who exhibited an immediate prick test positive to *A. terreus* and yielded a positive precipitin test to *A. fumigatus*. From this study, we feel it would be premature to recommend the use of any specific subspecies for routine clinical testing and that in the field of mould sensitivity insufficient is known to recommend that a specific subspecies should at present be standardized. Until such knowledge is obtained we would consider *A. terreus* as good

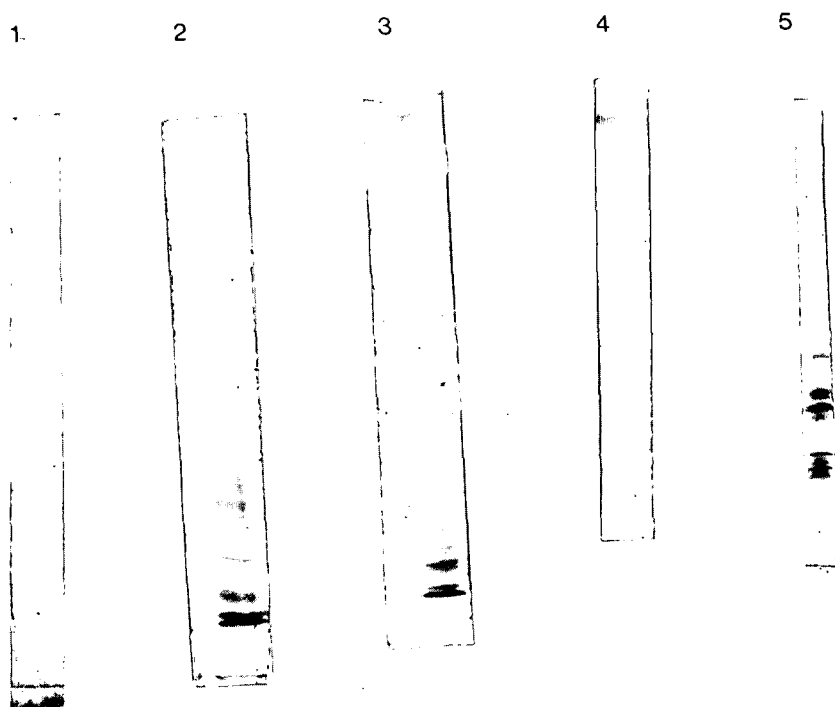


Fig. 1. Patterns produced on isoelectric focussing: 1 and 4, *A. fumigatus* (from different sources); 2, *A. terreus*; 3, *A. niger*; 5, *Trichophyton*.

and reliable as any other. It is clearly perfectly possible to prick test to one subspecies and perform precipitin estimation to any other.

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