MATERIALS AND METHODS
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During the present investigation period, the air sampling was carried out over rice (paddy) field at Balodabazar (District Raipur), with the help of Tilak air sampler and Gravity petriplates method from 25th July 1992 - 17th November 1992 and 11th July 1993 - 16th November 1993 for two kharif crop seasons.

Volumetric Tilak air sampler runs on electric power supply (AC 230 V) and provides a continuous sampling for eight days. The apparatus consists of two mechanical systems, the clock system and exhaust fan system. The electric clock fitted at the bottom in the instrument is synchronised with the motor of the exhaust fan fitted at the top.

Air is sucked in through the orifice projecting tube at the rate of five litres per minute impinging on cellophane tape on the outer surface of the circular drum. This drum is fitted on the clock system and rotates in anticlockwise fashion and complete one rotation in eight days, thus giving a trace of catches for a week (8 days).

The cellophane tape was slightly and thinly coated with adhesive white petroleum jelly. The tape, thus coated with adhesive, faces the orifice of outward projecting tube 0.5 cm. away from it. When the sampler is operated, the drum rotates continuously with clock mechanism giving minimum
air sampling for eight days.

After a period of eight days the tape is divided into equal sixteen parts with gradation lines on the surface of the drum. Thus, each part corresponds to 12 hours trace measuring 4.2 cm. in length. These segments correspond to sampling of twelve hour period of day/night. Each Cellophane segment is mounted on a date labelled clean glass slide with glycerine jelly as mountants.

At the time of air sampling, the air is sucked through the orifice tube. The small exhaust fan having three prongs, fitted in the circular opening in the lid chamber creating a vacuum in the collecting chamber. An exhaust hole 6x27 cm. is left in a cover lid of the sampler.

**SAMPLING METHOD**

Volumetric air sampler was kept in operation in the rice (paddy) field at Balodabazar (Raipur) at a constant height of three feet above the ground level with orifice towards west for air monitoring for two seasons. The apparatus was well protected from rain by polythene cover without disturbing efficiency. Air was sampled at the rate of 5 lit/min. and the transparent cellophane tape coated with white petroleum jelly as an adhesive. The tape was changed after a period of eight days. The slides were prepared as described by Tilak and Srinivasulu (1967). Glycerine jelly has the best optical property for visual
examinations and it was prepared as follows:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gelatine</td>
<td>40 g.</td>
</tr>
<tr>
<td>Glycerol</td>
<td>120 ml</td>
</tr>
<tr>
<td>Distilled water</td>
<td>140 ml</td>
</tr>
<tr>
<td>Phenol</td>
<td>0.5 g.</td>
</tr>
</tbody>
</table>

The glycerol (glycerine) and distilled water are mixed in a beaker heated in a waterbath for 2-3 hours. While heating this mixture, gelatin is added slowly by stirring just to avoid the clumping. After complete dissociation of gelatin, phenol crystal are added as preservative and metabolic inhibitor. After cooling, it forms a cake of jelly glycerine. This glycerine jelly was used as the mountant for preparing the permanent slides.

**SCANNING**

Scanning of all prepared slides was done regularly for the area of 9600 sq. micron of the total area of the trace obtained in a day and then scanned.

The conversion factor used for the volumetric Tilak air sampler is "14". This conversion factor obtain by following calculations.

1. Sampled area  
   \[
   = 8.4 \text{ cm} \times 1 \text{ cm} \\
   = 8.4 \text{ cm}^2 \\
   = 84,000,000 \text{ mm}^2
   \]
2. Scanned area = 20x20x24
    = 9600 mm$^2$

3. Volume of air sampled per minute = 5 liters/min.

4. Volume of air sampled in 24 hours = 5x60x24
    = 7200 litres/24 hrs.

5. To convert one litre of air into 1 cubic metre, multiply by - 0.001000028

6. Volume of air sampled in 24 hrs. in terms of cubic meters = 7200x0.001000028
    = 7.3 m$^3$

7. Volume of air sampled in the scanned area in 24 hours = 9600x7200
    = 69.12 litres

8. Volume of air sampled in the scanned area during 24 hours = 1000
    = 69.12
    = 14.20 m$^3$

The conversion factor for Tilak air sampler is 14.2, for simplicity in calculations '14' as the conversion factor in round figure has been used as suggested by Tilak (1982).

The sampler being volumetric the number of spores/m$^3$ of air can be calculated as - number of the spores catches x conversion factor.

**SAMPLING SITE**

Air monitoring was carried out using the volumetric air
sampler and petriplates method in the rice fields (5 acres area) at Balodabazar (Raipur) was selected as trapping site. The mycobial content in the air over rice field was studied for two consecutive seasons i.e. kharif season I from 25th July 1992 - 17th November 1992 and 11th July 1993 - 16th November 1993, kharif season II. Simultaneously the meteorological data was also obtained.

The continuous volumetric sampler was installed in the middle of rice field at three feet constant height. The field was used for cultivation of rice for two consecutive kharif seasons.

The observations were started after sowing of the seed and continued till the harvesting of crop.

Crop seasons, sampling period, sowing and harvesting dates are presented in tabular form:

**RICE (PADDY) CROP**

<table>
<thead>
<tr>
<th>Season</th>
<th>Sowing date</th>
<th>Harvesting Date</th>
<th>Sampling Date</th>
<th>Sampling Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kharif season II</td>
<td>24th July, 1993</td>
<td>15th November 1993</td>
<td>25th July- 16th November 1993</td>
<td>115</td>
</tr>
</tbody>
</table>

Simultaneously another method i.e. petriplates method used for aeromycoflora over rice fields at Balodabazar
The air sampling was done alternate day by exposing two petriplates containing PDA media. The petriplates were exposed over rice field for 5-10 minutes in the air. Then the petriplates were brought in to the laboratory and incubated at 26±1°C for 6 to 8 days. After incubation period fungi were counted, isolated and identified with the help of available literatures. At the end of incubation period percentage contribution of aeromycoflora was assessed.