Three periods of sampling have been carried out. The first sampling in 2005 with Rototorod equipment; the quantitative parameters were diversity, volume, and frequency of spores, as well as its relation with meteorological factors, like average temperature, relative humidity, and precipitation; a second study was performed in 2008, with same parameters and equipment. In 2011 new sampling is performed by using the Burkard sampler which includes same parameters as the first and second sampling.

**Results:** In 2005 the most abundant types were Alternaria 3,419/m3 with greater representativeness in August (24.81%); the same to Bipolaris 1,846/m3 (22%); Stemphylium 1197/m3 with greater presence in February (15%); temperature and relative humidity were correlated with the presence of spores being an association linear loss; the correlation in annual tendency is smaller, related to the seasonal monthly correlation; correlation of cold season is greater than correlation of the warm season. A study carried out in 2008 showed, high incidence of Cladosporium, on April 57, 32%. Same month in the first sampling only 15.11%. In 2011 richness of Ascospora, Cladosporium and Periconia, showed very different results the same months but sampling in 2005 and 2008.

**Conclusions:** The studies show different data related with type and richness on same months. Data obtained in the first study correlated the relationship between air pollution caused by fungal spores and the incidence of childhood asthma in Mexicali (de la Fuente, 2009).

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**AEROBIOLOGY**

**218 Thunderstorm-Related Asthma in Patients Sensitised to Olea Europaea Pollen: Twenty Emergency Department Visits for Asthmatic Symptoms in One Single Day**

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**Background:** Asthma exacerbation associated with thunderstorms has been reported in several countries. Common to all epidemics of thunderstorm-related asthma is a significant increase in atmospheric allergen load during and immediately after a thunderstorm. Sensitization to Alternaria species or to grass and pteraria pollens has been suggested to play a key role in thunderstorm-related asthma. The only reported event of thunderstorm-related asthma in Mediterranean area was attributed to sensitization to pteraria pollen.

**Methods:** Here we describe a series of 20 patients who accessed to an Emergency Department in Puglia (Italy) for sudden and severe dispnoea after a violent thunderstorm which occurred after a very warm morning (mean temperature 35°C). All patients had been previously visited by an allergist and underwent a complete allergological work-up which included skin prick tests and a careful clinical history record. Data from atmospheric pollen monitoring were recorded.

**Results:** In the months between 10th of May and 10th of June 2010, a total of 86 accesses to same Emergency Department were recorded for asthma exacerbations, 20 of them during the studied day. Patients’ mean age was 44.25 ± 18.5 years (range: 9–81), 8/20 females, 2 smokers, 16 with a previous history of known respiratory allergy. All 20 patients were sensitized to Olea europaea pollen, 7 of which were monosensitized. Other sensitizations were: 10 patients to grass, 7 to pteraria, 5 to compositae, 5 to cypress, 5 to house dust mites, 3 to dog and 1 to cat danders. Mean atmospheric pollen count was 170 granules/m3 for Olea europaea and 60 granules/m3 for grass pollen.

**Conclusions:** This is, in our knowledge, the second thunderstorm-related asthma episode described in Mediterranean area and the first one in which sensitization to Olea europaea played a key-role. This result should focus the possibility that not only the increase of molds and grass pollen load after a thunderstorm may raise asthma exacerbations.

**219 The Revised Edition of Korean Calendar for Allergenic Pollens**

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**Background:** The old version of pollen calendar was used until this year in South Korea. That calendar did not reflect current pollen distribution and concentrations that can be influenced by changes in weather and environment. A new pollen calendar of allergenic pollens was made based on the data on pollen concentrations obtained in 8 regions nationwide between 1997 and 2009 in South Korea.

**Methods:** The distribution of pollen grains was assessed every day at 8 areas (Seoul, Guri, Busan, Daegu, Jeonju, Kwangju, Kangneung, and Jeju) nationwide for 12 years between July 1, 1997 and June 30, 2009. Pollen were collected by using Burkard 7-day sampler (Burkard manufacturing Co Ltd, Hertfordshire, UK), and the collected pollens were sent every week to Hanyang Guri Hospital. Then pollens were stained with Calberla’s fuchsin staining solution and were identified. The number of pollen grains per m3 was calculated.

**Results:** Alder, birch and Japanese cedar started to appear in February. Japanese cedar showed a highest pollen concentration in Jeju. Pine became the highest pollen in May, and the pollen concentrations of oak and birch also became high. Common ragweed appeared in the middle of August and showed the highest pollen concentration in the middles of September. Japanese hop showed a high concentration between the middle of August and the end of September, and mugwort appeared in the middles of August and its concentration increased up until early September. Birch appeared earlier in Kangneung, and pine showed a higher pollen concentration than in the other areas. In Daegu, Oriental thuja, alder and juniper produced a large concentration of pollens. Pine produced a large concentration of pollens between the middle of April and the end of May. Weeds showed higher concentrations in September and mugwort appeared earlier than common ragweed. In Busan where is the southeast city, the time of flowering is relatively early, and alder and Oriental thuja appeared earliest among all areas. In Kwangju, Oriental thuja and hazelnut appeared in early February. In Jeju which is the end of southern island, Japanese cedar showed a higher pollen concentration than the other areas.

**Conclusions:** New information on pollen distributions and concentrations should be provided for the general publics or allergic patients through the website in order to prevent the occurrence of pollinosis.

**220 Aerobiological Study of Anemophilous Pollens in the City of Toluca, Mexico**

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221 Allergenic Significance of Airborne Rhizopus Stolonifer (ehrenb.) Vuill, a Common Bread Mold
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Background: Airborne fungi, a significant constituent of atmospheric bioaerosol, are well-known source of allergens and can cause allergic rhinitis and bronchial asthma in sensitive subjects. *Rhizopus stolonifer*, the filamentous fungus is a widely distributed thread-like Mucorales mold. Commonly found on bread surfaces, it takes food and nutrients from the bread and causes damage to the surface where it lives. Although a significant exposure risk is assumable in indoor environment, the role of this fungus in provoking allergic symptoms in pre-sensitized individuals, however, was poorly investigated.

We conducted this study to monitor airborne *R. stolonifer* and to evaluate its potential as an aeroallergen causing nasobronchial allergy in sensitized individuals.

Methods: Seasonal periodicity of *R. stolonifer* was studied for 2 years (March, 2009-Feb.11) by Andersen air sampler. The relationships between meteorological parameters and airborne *R. stolonifer* concentration were explored by linear regression models. The allergic potential of *R. stolonifer* extract was studied on 389 respiratory allergic patients by performing skin prick tests (SPT) and measuring the allergen-specific IgE levels in SPT positive patient’s sera by Enzyme-linked Immunosorbent Assay. SDS-PAGE and immunoblotting with pooled patient sera were performed to identify its IgE-binding components.

Results: Airborne *R. stolonifer* concentration range was 4 to 47 CFU/m³ and reached the peak concentration in March. Relative humidity was found to be a significant predictor for occurrence of *R. stolonifer* in air. Positive skin reaction was observed in 105 patients (27%) including 10 (9.5%) showing markedly high (2+ to 3+) skin sensitization. Crude antigenic extract of *R. stolonifer* was resolved in 16 protein bands in the molecular weight range of 12 to 72 kDa on SDS-PAGE (12% gel). Three IgE-binding protein bands (17, 21and 67.12 kDa) were detected by immunoblot analysis.

Conclusions: The study revealed *R. stolonifer* to be a major risk for potential sensitized individuals due to its known allergenicity and its high atmospheric concentrations between late winter and early spring, followed by Alnus, Pinaceae, Gramineae, Asteraceae, Casuarinaceae, Schinus, Cheno/Amp and Moraceae. This is the first effort to create the Mexican Aerobiological Network (REMA), and further studies are needed to correlate clinical data.

222 Aerobiological and Immunological Studies on Coconut Pollen Allergy
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Background: Pollen grains constitute a significant portion of the aeroallergenic flora. The plant *Cocos nucifera* (commonly known as coconut) is found in huge quantities in the tropical coastal areas of the world and is very common in Kolkata, India. A 2 years aerobiological survey was carried out using Burkard Volumetric Sampler to know the seasonal variation of Cocos nucifera pollen. The plant flower through out the year but maximum concentration was found in the month of August. Allergenicity of *Cocos nucifera* pollen has been reported from the Skin Prick Test, Lung function test, ELISA from a 400 susceptible patients in and around West Bengal in India. An immunobiological study was conducted to identify major allergens from *Cocos nucifera* pollen causing hay fever, skin allergy and allergic asthma in Kolkata population.

Methods: Proteins from pollen grains were obtained by initially defatting and then extracted with sodium phosphate buffer with 10 mM PMSE. Total protein was divided into 4 fractions by ammonium sulfate at 25%, 50%, 75% and 100% respectively. SDS PAGE was done with the 25% fraction (result obtained from dot blotting) and subsequently western blotting was performed. Two dimensional gel electrophoresis and immunoblotting was also done from the crude protein.

Results: The total protein was separated on a SDS PAGE gel showed 21 prominent bands by Coomassie Blue staining. Dot blotting the different fractions from ammonium sulfate cut, showed a positive result in the 25% fraction. Western blot with patient specific sera gave 3 bands out of which a major band was obtained at 60Kd. This result was obtained in more than 65% of the patients from whom Sera was isolated. 2D gel electrophoresis of the crude protein sample was performed which showed 120 protein spots in the PI range of 3 to 10 and molecular weight 14Kd to 97Kd. Immunoblotting the 2D gel with pooled patient specific sera showed 20 spots thus implying IgE reactivity.

Conclusions: It can thus be inferred that *Cocos nucifera* pollen grains are very common in the air and are important to cause allergy to susceptible persons. More over the 60 Kd protein is responsible for allergenicity.