



Pan American Aerobiology Association  
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## **PAAA Newsletter**

Summer 2010

Pan-American Aerobiology Association [www.paaa.org](http://www.paaa.org)



*The Pan-American Aerobiology Association (PAAA) is an assemblage of individuals with diverse scientific backgrounds and expertise who have a common interest in the sources, dispersal, and deposition of airborne biological particles. The organization was officially constituted in June 1989 during the Second Canadian (and first Pan-American) Symposium on Aerobiology. The PAAA is an associated organization of the International Association of Aerobiology (IAA) and acts as the representative of the IAA in the Americas. You may join the PAAA at [www.paaa.org](http://www.paaa.org). PLEASE JOIN US!*



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## PAAA Executive Committee – 2009-11

President - James Scott – [jscott@sporometrics.com](mailto:jscott@sporometrics.com)

Vice President - Charles Barnes – [barnescs@umkc.edu](mailto:barnescs@umkc.edu)

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At Large Members:

Felix E. Riviera – Mariani – [friviera@rcm.upr.edu](mailto:friviera@rcm.upr.edu)

Maria Gabriela Murray – [mgmurray@criba.edu.ar](mailto:mgmurray@criba.edu.ar)

You may join the PAAA at [www.paaa.org](http://www.paaa.org).

Full membership is \$25. Student membership is \$15.

*Amigos y Miembros de la PAAA fuera de los Estados Unidos de América: aceptaremos gustosos sus contribuciones en español, portugués o francés. Según las posibilidades de la edición, saldrán en el idioma original, o traducidas al inglés.*

**Don't miss!!! "Expanding aerobiology"**

*9th International Congress on  
Aerobiology  
and  
PAAA Annual meeting*

**Museo Argentino de Ciencias Naturales  
"Bernardino Rivadavia"**

**Buenos Aires - Argentina  
August 23-27, 2010**

**Link to Registration: <http://www.paaa.org/>**

**Contact: [9thica@aerobiologia.com.ar](mailto:9thica@aerobiologia.com.ar)  
Phone: 54-291-4595101 (2420)  
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## **“Expanding aerobiology”**

The previous Aerobiology Congresses have identified a specific theme that summarizes the perspectives of the meeting, a forward vision for Aerobiology over the next few years, within a framework of continuing development. For example, the 7th ICA was focused on the ecological significance of Aerobiology (“Coming of age in a new millennium”), while the 8th ICA proposed to make Aerobiology an integrated science, encouraging close collaboration between aerobiologists and other scientists from related fields (“Towards a comprehensive vision”). Aerobiology, if not a new science, is currently experiencing a phase of fast development, as can be seen from the proliferation of aerobiology related researches throughout the World, as well as from many new advances in techniques and methods. Moreover, we now face the exciting challenge of introducing Aerobiology in new countries, many in Latin America, promoting both its geographical and scientific expansion. Therefore, we propose to present a “snapshot” of these new intellectual territories in Buenos Aires in 2010.

There has been a constant progression of Aerobiology in South America for several years, and particularly in Argentina. Therefore, Buenos Aires, as a strategic geographical point in South America, would be a very good opportunity to foment participation of Latin-American scientists involved in Aerobiology and to promote IAA in this continent.

Thirty-five years after its birth, we believe it is time for IAA to convene – for the first time – in the southern hemisphere and experience the American topics. We invite everyone to not only consider Aerobiology with a global vision but in a participative manner. We are looking forward to welcoming you all in Buenos Aires, 2010.

## **Newsletter Editor Note**

This Summer Newsletter publication shall be rich in technical content. In the “Student Corner” section, we get acquainted with Nicole Abel and Landon Burderson profiles and projects at University of Tulsa.

Congratulation to Felix E. Rivera-Mariani from University of Puerto Rico, for his doctoral thesis. He shares with us his doctoral thesis dissertation abstract pertaining to the sensitization to basidiomycetes and airborne fungal particulate.

Donat Magyar from National Institute of Environmental Health in Hungary handed us a technical note on “Spores *versus* pollen grains”. You will find in the section “Notes from our friends” an outline of his path and area of interest.

Permanent mounting media part II will account for the compatibility of PVA-L with stains and sampling devices’ capture media.

Finally, in order to get you ready for the next meeting, you will find last year’s General Membership Meeting Minutes proposed by Robert Reid III. I invite you to attend the 9<sup>th</sup> International Congress on Aerobiology and PAAA Annual meeting, in Buenos Aires, Argentina.

Wish you a few minutes of relaxing reading.

Ginette Leclaire

## **Student Corner: University of Tulsa**

### **Graduate students in Estelle Levetin's Aerobiology Lab at The University of Tulsa**

**Nicole Abel**

I am a Master's student at the University of Tulsa working under Dr. Estelle Levetin. I will be graduating in December of 2010. Before moving to Tulsa, I graduated with my Bachelor's in Biology from Northwestern Oklahoma State University in Alva. I am originally from Woodward, OK. My graduate research has been on comparative microsatellite-based typing of environmental *Aspergillus fumigatus* (AF) isolates. *Aspergillus fumigatus* has known health effects, especially on those who have asthma, allergies, or immunocompromising conditions. Ottawa County in northeast Oklahoma has a higher asthma rate than the rest of the state. *Aspergillus fumigatus* is commonly found in high concentrations in compost. A large compost facility in the area could be a factor affecting the asthma rate. Through air sampling, we have found that Ottawa County has a significantly higher concentration of airborne AF compared to Tulsa County controls. We are trying to determine if the compost facility is the source using DNA fingerprinting. We have collected isolates from the facility's compost, Ottawa County air, Tulsa County air (control), and from the surface of the mushrooms grown in their compost. Microsatellite analysis is being done on all of these isolates for comparison. So far, the preliminary data suggests that the compost facility is a possible source of the elevated *Aspergillus fumigatus* in Ottawa County. I have also been working on a side project to determine if washing store-bought mushrooms in the sink can cause airborne *Aspergillus fumigatus* in the home.

## **Landon Bunderson**

After completing a B.S. in biology at Utah Valley University, I went to work for the forest service Shrub Research Lab in provo, UT where I was involved with the development of native plant materials for revegetation and fire restoration. I then studied native grasses for the use as low-input turf at Utah State University where I received a M.S. in plant science.

My current project at The University of Tulsa will provide significant enhancements to our understanding of juniper pollen phenology, its dependencies on environmental parameters, and the relationship between phenology stage and the pollen signal observed in MODIS data. This proposed effort will be part of a recently NASA ROSES funded proposal entitled “Integration of Airborne Aerosol Prediction Systems and Vegetation Phenology to Track Pollen for Asthma Alerts in Public Health Decision Support Systems”. The ROSES project will develop a deterministic model for predicting and simulating pollen release and downwind concentration to study dependencies of phenology on meteorology and develop a real-time, rapid response pollen release and transport system as a component of the New Mexico Environmental Public Health Tracking System (EPHTS), based on meteorological models, and NASA Earth science results (ESR). The project, and subsequently the model, will incorporate medical record data to determine the effects of different pollen concentrations on vulnerable patients. I will be principally involved in collection of ground data and ground verification which will provide vital information for the modeling portion of the project. The large amount of airborne pollen that junipers produce affects inhabitants of cities and towns adjacent to juniper woodland areas and because juniper pollen can be transported over long distances, it affects populations that are far away. My research

will quantify pollen production in trees. I will also track the release of pollen in native populations with Burkard volumetric spore traps and attempt to improve our understanding on how climate affects pollen release from year to year.

## **Doctoral Thesis Dissertation Abstract: Félix E. Rivera-Mariani, U. of Puerto Rico**

### **Sensitization to basidiomycetes and airborne fungal particulate by asthmatic and allergic rhinitis subjects**

**Background:** There is an increasing incidence of respiratory allergies worldwide. These allergies are usually detected by clinical symptoms, family history, *in-vivo* by the skin prick test to determine the presence of any reaction against various extracts, and *in-vitro* by immunological assay to test total and specific immunoglobulin E levels. Fungal allergies are diagnosed in the same manner, but not all fungi are being tested for in part because extracts are not available, such as those from basidiomycetes and ascomycetes. Spores from these fungi are the most predominant in the atmosphere of San Juan, Puerto Rico (a tropical island), but sensitization to them has not been studied; only deuteromycete (mitosporic) fungi has been tested.

**Hypothesis:** For these reason, the hypothesis is that sensitization against basidiomycete and ascomuycetes is higher than mitosporic fungi in subjects with allergic respiratory diseases in a tropical environment.

**Specific Aims:** To test this hypothesis we determine the presence of sensitization to basidiomycetes with basidiospore

crude extracts (Specific Aim I) and to airborne fungal particulate, directly, with the halogen immunoassay in subjects with asthma, allergic and non-allergic rhinitis (Specific Aim II).

**Methods:** Fruiting bodies of basidiomycetes were collected from rural and urban areas, and spore prints obtained from them. Thirty six specimens were collected, but three basidiomycetes (*Ganoderma applanatum*, *Chlorophyllum molybdites*, and *Pleurotus ostreatus*) were selected based on the number of fruiting bodies available, amount, and purity of spore prints. The spores were homogenized, their protein concentration determined, and tested together with a battery of commercial extracts that included deuteromycetes, mite, pets (dog and cat), cockroach, and pollen (grass and trees) on subjects with diagnosed asthma, allergic or non-allergic rhinitis. Air samples were collected with the Allergenco® MK-3 air sampler and sensitization against fungal particles detected with the halogen immunoassay. The concentration of particles collected and the percentage of particles with haloes were calculated. Both the skin prick test and the halogen immunoassay were performed on the same 33 individuals which included two controls and subjects with asthma, allergic, or non-allergic rhinitis. All allergic rhinitis (12) and asthmatic subjects (9) but one were reactive with at least one extract; 72% (8/11) of non-allergic rhinitis were negative. From all of the subjects, reaction to mite (36%; 12/33) > *Ganoderma applanatum* (30%; 10/33) > grass (27%; 9/33), *Chlorophyllum molybdites* (12%; 4/33) = *Pleurotus ostreatus* > *Penicillium sp.* (9%; 3/33) > *Alternaria sp.* (6%; 2/33) = *Aspergillus sp.* = cockroach = cat > *Fusarium sp.* (3%; 1/33) = trees, and negative to *Chaetomium sp.* and dog; percentages of positive to mites, *Ganoderma applanatum*, and grass were significantly different against all other extracts. When

reactions were arranged into allergen source, the percentages to animal (mite, cockroach, and pets) (36%; 12/33) > basidiomycetes (33%; 11/33) > pollen (grass, trees) (30%; 10/33) > deuteromycetes (18%; 6/33). Allergic rhinitis subjects were reactive to mites (58%; 7/12) > grass (42%; 5/12) > *Ganoderma applanatum* = *Penicillium sp.* (25%; 3/12) > cat (17%; 2/12) > *Aspergillus sp.*, *Alternaria sp.*, *Chlorophyllum molybdites*, *Pleurotus ostreatus*, and trees, (8%; 1/12), and negative to *Fusarium sp.*, *Chaetomium sp.* and dog; When allergens were grouped by source, reaction to animal (58%; 6/12) > pollen (50%; 6/12) > deuteromycetes (33%; 4/12) = basidiomycetes (33%; 4/12). For asthmatic subjects, reactions to mites = *Ganoderma applanatum* (44%; 4/9) > grass (33%; 3/9) > *Pleurotus ostreatus* (22%; 2/9) > *Aspergillus sp.* = *Alternaria sp.* = *Chlorophyllum molybdites* = cockroach (11%; 1/9), while there were no reactions to trees, cat, *Fusarium sp.*, *Chaetomium sp.*, or dog. When allergens were arranged into source, reaction to basidiomycetes (55%; 5/9) > animal (44%; 4/9) > pollen (33%; 3/9) > deuteromycetes (11%; 1/9). There was a correlation between IgE levels and the number of extracts being positive and extracts from outdoor allergens (pollen, *G. applanatum*, and deuteromycete). With the halogen immunoassay, all subjects, including those that were skin prick test negative to fungal extracts, reacted to at least one fungal particle; reaction to ascospores (94%; 31/33) > basidiospores (88%; 29/33) > hyphae and fungal fragments (58%; 19/33) > mitospores (deuteromycetes) (36%; 12/33). Asthmatic, allergic, and non-allergic rhinitis subjects had 1.09%, 4.82 %, and 0.39% median percentages of haloes, respectively. Individuals positive to three or more, two, one, or no extract had 5.24%, 1.09%, 1.61%, and 0.57% percentages of haloes, respectively. Those skin-prick test positive to basidiomycetes had 4.73% haloed particles, to pollen 4.15%, to mites 3.63%, and to

mitospores 3.32%. From the total particulates recognized by all subjects, 24.95% were ascospores, 19.81% basidiospores, 6.52% hyphae/fungal fragments, 1.74% deuteromycetes, and 46.04% unidentified. The number of extracts being positive and IgE levels positively correlated with the percentages of total haloes.

**Conclusions:** Sensitization to basidiomycetes and mites was similar, but more importantly, reactions to basidiomycetes overall were more frequent than to deuteromycetes. In addition, levels of IgE were associated with the sensitization to outdoor allergens, such as pollen and fungal spores, which demonstrates that subjects do have active allergies outdoor allergens. With airborne spores, all subjects were reactive, but the levels of sensitization and IgE, not the concentrations of particles collected, determined the level of sensitization to airborne fungal particulate. Furthermore, in the skin prick test and halogen immunoassay, subjects were less reactive to mitosporic fungi compared to basidiomycetes and ascospores. In conclusion, in our tropical environment, sensitization to basidiomycetes, ascomycetes, and fungal fragments in subjects with allergic respiratory diseases seems to be more prevalent than mitosporic fungi. To our knowledge, this is the first study in the tropics in which sensitization to ascospores, basidiospores, and other airborne particulate was studied in individuals suffering from respiratory allergies.

**Félix E. Rivera-Mariani, Ph.D.** - [frivera@rcm.upr.edu](mailto:frivera@rcm.upr.edu)

## Notes from our friends

### **Donát Magyar**



My interest in aerobiology started during my M.Sc. studies, when I collected air samples and microfungi in forests around Budapest to identify fungal spores. I started my career at the Hungarian Aerobiological Network (National Institute of Environmental Health, NIEH) in 1996 where my role was the monitoring and managing the pollen bulletin. My PhD work was started at the University of Perugia, (Italy) and finished in the Plant Protection Institute of the Hungarian Academy of Sciences, which study focused on multivariate analysis of air

spora biodiversity. Two years after completing my PhD I returned to the NIEH, where my main areas of reearch are: indoor molds and aerobiological modelling (based on the NIEH database from 1992 to 2009 with 32 pollen types from our monitoring stations [19 in 2010]). I got further qualifications on international courses (Course on Food- and airborne Fungi, CBS, the Netherlands; Fusarium Laboratory Workshop, ISPA, Italy). I had the honor to be awarded by IAA (2007) and invited sometimes as a lecturer for AIA Courses and participate as a national delegate in the COST Action ES0603. Besides aerobiology, the spore dispersal by rainwater and insects are also concerned- the latter one resulted a method to identify the origin of forest honeys by means of spore identification. Another project investigating the effect of aphid feeding on ragweed pollen production and viability is finished recently. Another area I am interested in developing monospore isolation techniques („spore hunting”, mostly from natural spore/pollen traps), which resulted some papers in fungal taxonomy and description of new hyphomycete species. Outside of work, I spend my time with my two sons.

Donát Magyar, Ph.D.  
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## **Technical note: Spores versus pollen grains - Donát Magyar**

Direct microscopical analysis of air samples allows the observation of pollen grains, fungal spores and other particles, sometimes strange ones. One of these strange particles attracted my attention: a „Chymera”, consisting of pollen and fungi (more precisely: parasitized pollen grains wrapped by fungal mycelia, Fig 1.a). How these particles are formed? There are some literature data and personal observations to try explain their origin.

In the experimental ragweed (*Ambrosia artemisiifolia* L.) field of the Plant Protection Institute (Budapest, Hungary), a 7-day continuous Hirst-type trap (Hirst 1952, Lanzoni Co. Ltd., Italy) was used to collect air samples from June 29 to October 04, 2007, aspirating at 150 cm a.g.l. Meteorological instruments (Weather Station WS-3600, Conrad Electronic SE, Hirschau, Germany) were placed next to the trap.

Parasitized pollen grains of *A. artemisiifolia* were found in the 20.8% of the air samples (avg. 0.6, max. 13 particles/m<sup>3</sup>). Relative abundance of these pollen grains increased at the end of the pollen season in the air of the ragweed field (Fig. 2.). Linear regression analysis with two variables (temperature,  $p$  0.014,  $\beta$  -0.31 and daily rainfall lagged by 3 days,  $p$  0.017,  $\beta$  1.13) affected significantly the airborne concentration of these particles. (No interactions were found between these parameters). These result shows that three days after rainfall and subsequent fungal growth the detection of parasitized pollen grains in air samples would be expected.

Ragweed samples collected from the field were inspected under the microscope for the presence of moulds. Flowers from ragweed samples collected at the end of the season were covered by sporulating colonies of *Alternaria*, *Cladosporium* (Fig. 1b) and *Epicoccum* spp. The mycelia of these fungi

stopped pollen emission by wrapping anthers and pollen grains, but anthers were still full with pollen. The colonies were sporulated strongly on the flowers (these fungi are common allergens). Concentration of these fungi is also high in air samples collected above 87 ragweed fields in Hungary (Magyar, unpublished observations). These results lead to an interesting conclusion: late-season ragweed flowers „produce” and aerosolize no pollen but fungal spores, thus ragweed contributes to the fungal allergen load of the atmosphere.

It is known that pollen grains stimulate fungal growth. Hutchison and Barron (1997) summarized several evidences about this so-called „pollen effect” (term used by Fokkema 1968). Fig. 1c shows an air sample with ragweed pollen grain and the sporangium of *Peronospora farinosa* (Fr.) Fr.; the sporangium germinated on a wetted air sample and grew towards the pollen grain. According Stanley and Linskens (1974) viable pollen grains become leaky after wetting, and nutritive compounds of the cytoplasm (vitamins, amino acids, carbohydrates, etc.) can be detected in the leachates. This could provide a basis for the chemotropic attraction of the hyphae (Hutchison and Barron 1997). It was also shown that *Fusarium culmorum* degrades pollen allergens under laboratory conditions (Hoff et al. 2002).

Fungal mycelia can cover the pollen surface or penetrate through the openings of pollen grains and forms microsclerotia-like structures inside the pollen grains. Pollen grains play a crucial role in the life history of several members of plant pathogenic fungi, as supplementing the nutritional requirements after spore deposition and in the early stages of infection of the host plant (Barron 1997). Pollen grains contribute a remarkable nutrient input in low-nitrogen environments e.g. for lignicolous fungi. Mouldy pollen grains are frequently found in tree bark fissures (Magyar 2008), since trees, acting as natural pollen and spore traps, accumulate a

large amount of airborne particles. When moisture is available pollen grains deposited on trees are attacked by germinating spores and bounded by hyphae. Pollen retention may be optimal in wet conditions when pollen parasitic fungi are present. Such pollen grains lose their allergen content and their reemission will hardly take place. Consequently, these fungi may play an important role in preventing pollen reemission, consequently in shorting pollen seasons.

—*Donát Magyar*, Ph. D.

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The ragweed project mentioned in the text was supported by GVOP-3.1.1-2004-05-0111/3.0. The author is grateful to János Bobvos for his help in the statistical analysis.

## **Literature**

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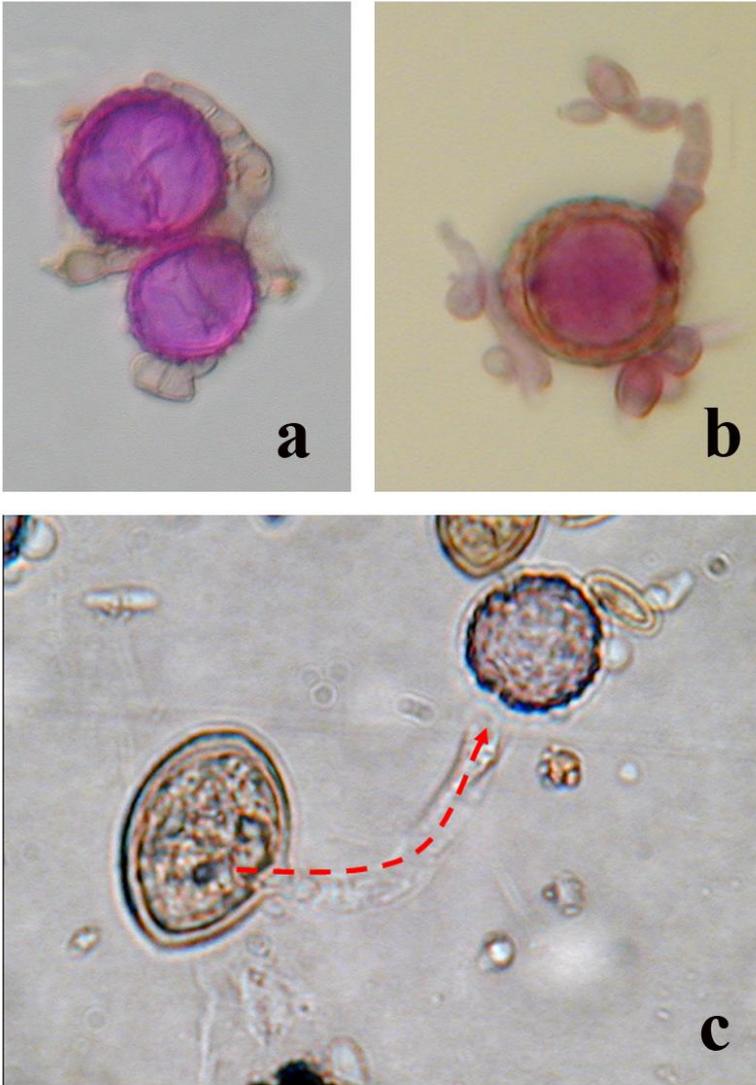


Fig 1. Pollen parasitism by fungi. a: Parasitized pollen grains in an air sample. b: *Cladosporium* microcolony on ragweed pollen in an anther sample. c: Ragweed pollen and germinating *Peronospora farinosa* on a wetted air sample, arrow shows the direction of germ tube growth.

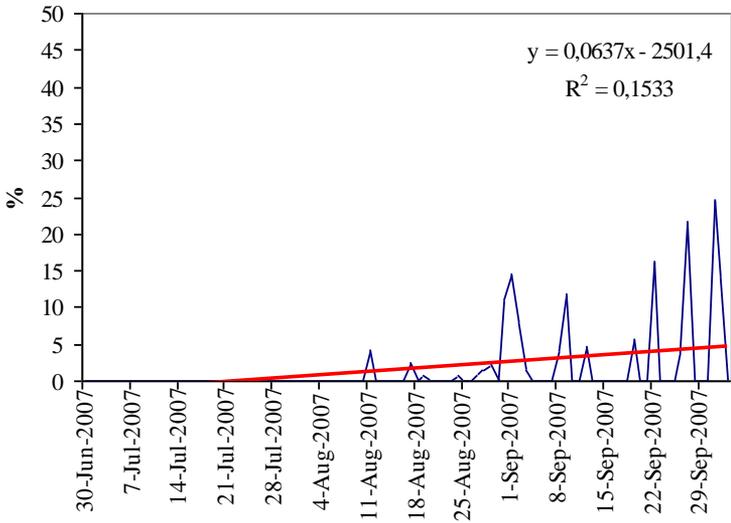


Fig. 2. Relative abundance of the parasitized pollen grains in the air of a ragweed field in Hungary.

## **Methods and Procedures: Permanent mounting media** **Part II**

### **Lactophenol with PVA (Levetin 89): Compatibility**

In the preceding Newsletter, procedure for preparation of Lactophenol with Polyvinyl Alcohol (PVA-L) permanent mounting medium was described.

In our daily work we have found that PVA-L mounting medium is compatible with the following stains: Phenosafranine, Acid fuschine and Basic fuschine. It is not compatible with Cotton blue.

This permanent mounting medium is compatible with double sided tape<sup>1</sup>. It will clear Versa Trap<sup>2</sup> Cassettes' capture media within about an hour. Allergenco D Full slide Posi -Trac<sup>3</sup> Cassettes' capture media will require from 12 hours to 14 days to clear. Slight background reticulation might subsist on certain mounts. Once it is cleared it can be kept for years. Do not heat; it could cause crystal formation. Keep away from freezing. Because there is lactic acid in its composition, gas bubbles will be generated if there is carbonate material on the samples' trace.

If you have experimented with the compatibility of PVA-L with other stains or sampling devices' capture media, I invite you to send your observations to be published in a further Newsletter.

Ginette Leclaire, [leclaireg@videotron.ca](mailto:leclaireg@videotron.ca)

<sup>1</sup>: Scotch 3 M # 9425

<sup>2</sup>: Omega Specialty Division

<sup>3</sup>: Environmental Monitoring Systems

## **PAAA General Meeting Minutes (Proposed)**

**Thursday, July 30, 2009**

**Children's Mercy Hospitals and Clinics - Kansas City, Missouri**

Present: Nicole Abel, Annalisa Ariatti, Charles Barnes, Marsha Cullen, Susan Flappen, Robert Garrison, Dr. Mary Jelks, Melanie Joy, Jeff Kiva, Estelle Levetin, Jeff May, Michael Muilenberg, Robert Reid III, Felix Rivera-Mariani, Larry Robertson, Christine Rogers

Teleconference : Paul Comtois, Ginette Leclaire, Maria Gabriella Murray, Sahay Rajiv, James Scott

I. Call to order: The PAAA General Meeting at Allergy Conference Room CMH, was called to order by Mike Muilenberg at 3:00 PM

1. With members present and online a quorum is attendance.

II. Modifications to the agenda: There were no modifications to the agenda.

III. Review of 2008 PAAA General Meeting minutes: All approved.

IV. Old business: None

V. Reports

A. President: Paul Comtois: no report

B. Vice President: James Scott: no report (not present)

C. Secretary/Treasurer: Michael Muilenberg presents and explains his report.

1. See Treasurers report, addendum 1

2. Treasurer's report: approved as read and reported.
  3. Membership: 83 current members, 3 honorary members
- D. Recording Secretary: Ginette Leclaire (internet): there was no mail or other document received this year. Was not present at last year's meeting so could not help with minutes. Wish to thank Charles Barnes for taking care of minutes and also Michael Muilenberg for his contributions.
- E. Newsletter Editor: not present, no current newsletter in circulation
- F. Web Master: Annalisa Ariatti: Requesting information about upcoming national and international events to help keep the PAAA visible. Discussion of publishing a blog/message board for unknown spores and bacteria.
- G. Conference Organizer: Charles Barnes. There are 21 people registered for the meeting and 13 registered for spore camp.
- H. At-Large Members: Felix Rivera-Mariani: no report
- I. SDA Chair: Christine Rogers: There was no SDA and Travel awarded this year
- J. Latin American Committee: Ines Hurtado: announced resignation. Felix Rivera-Mariani received scholarship to attend this meeting.
- K. Ragweed Forecast Committee: Annalisa Ariatti : 2008 season results were good. Platform for website upgraded.
- Motion to accept.
- L. Biological Sampling Strategies (BOSS) Working Group-Direct Method Analysis (DME ) Ginette Leclaire (teleconference) see addendum 2.

## VI. New Business

### A. Upcoming meetings/activities

1. 2010 Annual Meeting: Charles Barnes: 2010 will be in Argentina

2. 2011 Annual Meeting: Charles Barnes: 2011 possibly a joint meeting with another society like Society for Aerosol Research. Two other possibilities are Puerto Rico- Felix Rivera-Mariani or San Diego- Robert Reid

### B. Nominating Committee:

Proposed slate of officers:

President: James Scott

Vice-President: Charles Barnes

Membership Sec/Treas: Mike Muilenberg

Recording Secretary: Robert T. Reid III

Newsletter Editor: Ginette Leclaire

Webmaster: Annalisa Arriatti

Past President: Paul Comtois

At Large members: Maria Gabriela Murray and Felix E. Riviera-Mariani

### C. Newsletter schedule

Ginette Leclaire will begin work to publish the next newsletter. Possible date: Autumn 2009.

### D. Other: Honorary membership: Open to members.

Anyone can make a nomination to the Executive Committee. Student Development Award: Name change to Dr. Mary Jelks Award. Motion passed.

Discussion of student award: Monies available from

this year. Proposed that there be two (2) awards next year for \$1,800 each. Motion passed. Latin American Travel Award: Estelle Levetin proposed that the award be increased up to \$1,800 to cover airfare & expenses. This will be up to the decision of the Executive Committee. Proposed to link dues with the IAAA to encourage re-association. Mike Muilenberg suggested modifying dues page to offer the option of PAAA dues or both PAAA and IAA. Motion passed.

VII. Call to adjourn: Meeting adjourned by Mike Muilenberg at 4:10 PM

Respectfully submitted by: Robert Reid III, Recording Secretary.

Addendum 1 (was distributed to participants on site)

Addendum 2

**PAAA**  
**Biological Sampling Strategies (BOSS) Working Group**  
**Special on: Guidelines for analysis (Direct Microscope**  
**Examination)**  
**June 2009 – Kansas City, Missouri**

**ACTIVITY REPORT**

**Project: Data gathering on “counting parameters” for single slit grab samples**

Aim: Generate data to build a scientific base to guide the elaboration of a standard spore counting method

After our 2007 Committee Meeting, efforts were made to continue the work started in 2007 pertaining to the gathering of data on spore counting parameters. This part of our activities has been very slow this year and is in standby for now. (Two of our active volunteer participants were in standby for a while)

**Project: PAAA Round Robin**

Aim: Set up a PAAA Round Robin

Meanwhile during 2008, there was a strong demand for an inter spore analyst Round Robin. So a few of us have gathered together to do the experience of a first PAAA Round Robin with the aim of getting it ready to offer to PAAA spore analysts members.

This Round Robin aims to get each analyst to situate himself in comparison to a group and to keep learning continuously. This second goal implies that as Round Robins go by we are going to ask contribution from experts in different ways. One way can be to count slides, an other way can be to help identify an unknown spore and so on.

This project went by very well. So far, two rounds went on with 6 and than 11 analyst participants. With Christine Rogers' help we have and still are testing a basic data sheet to fill up to submit results. (Hopefully could be annexed to the next PAAA Newsletter). We are going to adjust so things roll easy for participants and for volunteers that gather data together. The next round will be sent after the summer holidays 2009.

## **Project: Unknowns database**

Aim: Aid counters with difficult identification

This project is in standby for now. All volunteer energies have been concentrated on the round robin this year.

Respectfully submitted by: Ginette Leclaire and Larry Syzdek  
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## **Our members' publications**

*This section is a way for us to have a glance at all PAAA members' latest publications as they wish to inform us of their work. If you wish, you can send such information with or without comments to the Newsletter Editor: [leclaireg@videotron.ca](mailto:leclaireg@videotron.ca).*

## **In the next edition**

In addition to the regular sections we shall get a PAACB update and news from the PAAA Round Robin through the Biological Sampling Strategies (BOSS) Working Group.

***Contribution to the PAAA Newsletter** is always welcome. News from your lab or firm, news from students, aerobiology friends, reviews of books or articles, summaries of recent meetings, photos of interesting or unknown spores/pollen/other, etc. can be sent to Ginette Leclaire e-mail to: [leclaireg@videotron.ca](mailto:leclaireg@videotron.ca)*

## **Renew your 2010 membership**

All Pan-American Aerobiology Association (PAAA) members receive semi-annual newsletters and are entitled to **reduced** subscription rates to the journals **Grana** and **Aerobiologia** and to **Symposium registration fees**.

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If you have any questions phone: Tel. +1 (413) 545-3052, Fax +1 (413) 545-0964, or e-mail: [mmuil@schoolph.umass.edu](mailto:mmuil@schoolph.umass.edu)

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