

Standard Palynological Slides from Contemporary Flowers of Dhaka, Bangladesh

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Introduction

- Palynology** is the branch of science concerned with the study of pollen, spores, and similar palynomorphs, living and fossil. The term suggested by Hyde & Williams in 1944 (UA Geosciences, 2015).
- Pollen grains produced by different species of plant have a distinctive appearance. This helps us to work out what type of plant they were from, which in turn tells us the plants that used to grow in the surrounding area. Besides, pollen grains are generally transported by wind, insects and other animals and may find their way into deposits of lakes, oceans, swamps, mangroves and peat bogs (Behling H., 2005).
- Palynomorphs** include both plant and animal structures that are microscopic in size and are composed of compounds (i.e. sporopollenin, chitin, or related compounds) that are highly resistant to most forms of decay other than oxidation (Palynology Definitions, 2013). This characteristic allows for the use of pollen and spores as indicators of past vegetation types.
- The pollen analysis allows the reconstruction of vegetational changes and shifts of the complete vegetation zones. **Stratigraphic palynology** is the use of palynomorphs, their identification, distribution, and abundance to correlate among sedimentary sequences of any age or to provide chronological control for these sedimentary sequences. Pollen and spores can also be indicators for climate changes.

Purpose and Objectives

- The present work is undertaken as a outcome of two years field project entitled **“Standard Slides of Pollen on Dhaka City, Bangladesh (1st phase)”** of Stratigraphy and Biostratigraphy branch of Geological Survey of Bangladesh.
- The samples were live and collected from National Herbarium and National Botanical Garden; Mirpur.
- The purpose of this analysis is to identify the modern pollen, their environment and prepare a pollen catalogue which clarifies the modern palynological environment.
- Most of the flora and fauna of Holocene time are more or less similar with the modern herbs, shrubs and trees so it helps us to identify the ancient palynological zone as well as paleo-environment.

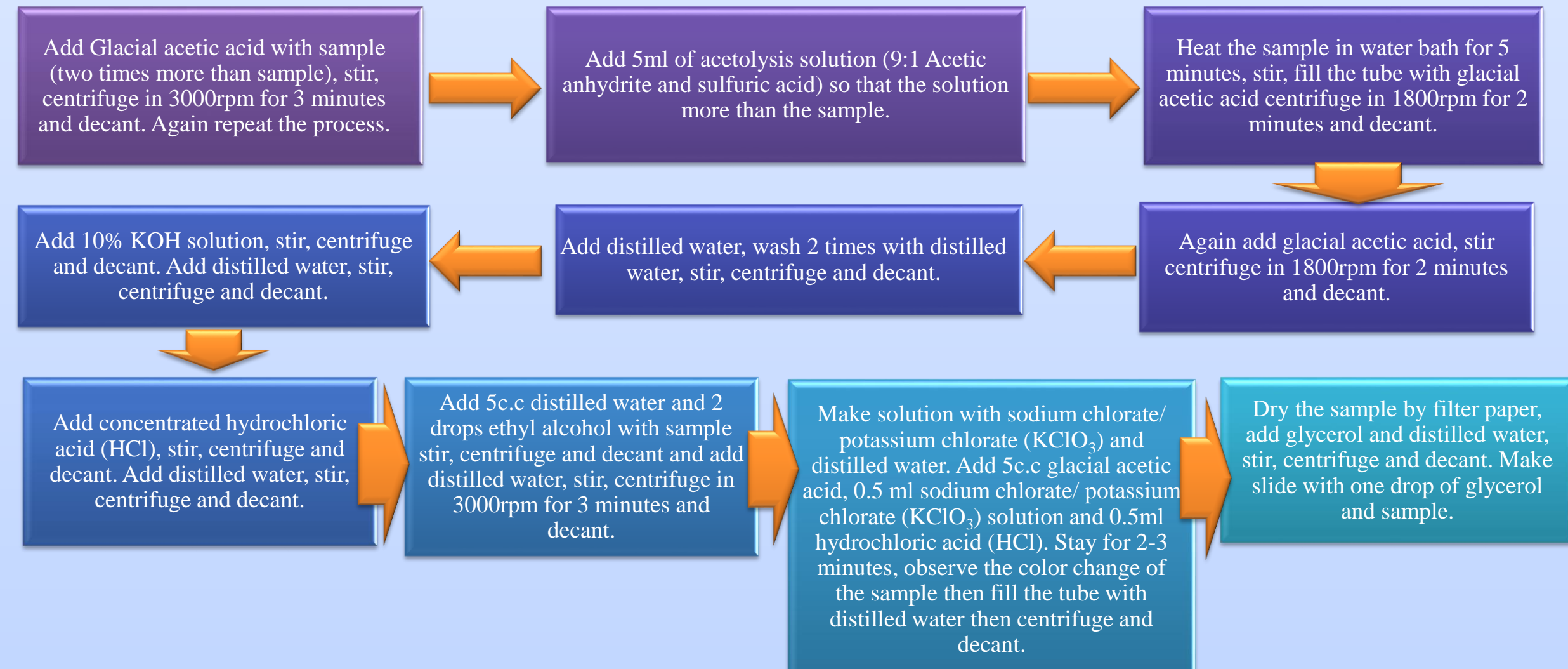
Two objectives are:

- to identify taxonomy of plants;
- to prepare a pollen catalogue for further research on Holocene pollen.

Methodology

- Sample Collection:** Live samples were collected from the tree and stored in sample bag with labeling.
- Laboratory Analysis:** Acetolysis method is applied for sample preparation.
- Slide Preparation:** Make slide with one drop of glycerol and sample.

Flow Chart



Microscopic Analysis



Serial No.	Cultured Area	Latitude	Longitude	Cultured Area (Field)	Plant Name (Specimen)	Common Name	Pollen Description
1	National Herbarium	23° 51' 17" N	89° 10' 42" E	23° 51' 17" N	Mussaenda glabrata	Mussaenda glabrata	Good in moisture and visible slide
2	National Herbarium	23° 51' 17" N	89° 10' 42" E	23° 51' 17" N	Cassia nodosa	Cassia nodosa	Good in moisture and visible slide
3	National Herbarium	23° 51' 17" N	89° 10' 42" E	23° 51' 17" N	Averrhoa carambola	Averrhoa carambola	Good in moisture and visible slide
4	National Herbarium	23° 51' 17" N	89° 10' 42" E	23° 51' 17" N	Ixora coccinea	Ixora coccinea	Good in moisture and visible slide
5	National Herbarium	23° 51' 17" N	89° 10' 42" E	23° 51' 17" N	Cassia fistula	Cassia fistula	Good in moisture and visible slide
6	National Herbarium	23° 51' 17" N	89° 10' 42" E	23° 51' 17" N	Barringtonia acutangula	Barringtonia acutangula	Good in moisture and visible slide
7	National Herbarium	23° 51' 17" N	89° 10' 42" E	23° 51' 17" N	Delonix regia	Delonix regia	Good in moisture and visible slide
8	National Herbarium	23° 51' 17" N	89° 10' 42" E	23° 51' 17" N	Borassus flabellifer	Borassus flabellifer	Good in moisture and visible slide
9	National Herbarium	23° 51' 17" N	89° 10' 42" E	23° 51' 17" N	Mussaenda glabrata	Mussaenda glabrata	Good in moisture and visible slide
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Findings

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Conclusion

- Till today, 36 samples were processed and analyzed under this field program. Among them, 32 samples were reported and presented here. Different plant groups and species were identified. Different **pollen types** and **characteristics** considering different genus and species of plant kingdom were **identified** by preparing a simple pollen catalogue.
- For the first time** a complete pollen sample preparation methodology for live flowers is established for Geological Survey of Bangladesh which will be served the organization for further research on pollen. Researcher can explain history of plant communities, habitats and environment with the help of these identified groups and species of plant kingdom. This pollen catalogue can contribute to the academicians and professionals in the field of Holocene pollen and assist them to identify the paleo-environment.
- Well established pollen sample preparation methodology would be useful for future research on pollen. The catalogue can be updated and well explained during future phases of the project by which the overall habitat of the study area can be explained well.
- As it is an ongoing field program the final and comprehensive report will come with a detail picture and ecosystem data. That may conclude with the environment as well the total ecosystem of the study area.

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Contact Information

