CURRICULUM VITAE

Of

Prof. Justus Ehijator EBHOAYE

1. Personal Data:

Date and Place of Birth:	October 14, 1957, Igueben, Edo State, Nigeria
Marital Status:	Married with Six (6) Children
State of Origin:	Edo
Nationality:	Nigerian
Present Status:	Professor
Contact Address:	Department of Chemistry, Ambrose Alli University, Ekpoma, Edo State.

2. Education:

- Ph.D. Chemistry, University of Benin. 1993
- M.Sc. Industrial Chemistry, University of Benin. 1985
- B.Sc. (Hons.) Chemistry, University of Ibadan. 1980
- PGDE, National Teachers' Institute, Kaduna (2008) Session
- West Africa School Certificate (WASC),
  St. Benedict's Boys' High School, Igueben, Edo State 1974

3. Employment History:

- 2006-2014 – Provost, College of Education, Igueben, Edo State.
- 2003- Date Professor, Ambrose Alli University, Ekpoma.
- 1998-2003 – Reader, Department of Chemistry, Ambrose Alli University, Ekpoma.
- 1995-1998, Senior Lecturer, Department of Chemistry, Ambrose Alli University, Ekpoma.

- 1991-1995, Lecturer 1, Department of Chemistry, Ambrose Alli University, Ekpoma.
- 1988-1991, Lecturer II, Department of Chemistry, Ambrose Alli University, Ekpoma.
- 1986-1988, Assistant Lecturer, Department of Chemistry, Bendel State University (Now Ambrose Alli University), Ekpoma.
- 1983-1984, Demonstrator in Practical Chemistry, University of Benin.
- 1980-1981, Science Teacher, Toro Teacher's College, Toro, Bauchi State (NYSC Posting).

4. Cognate Experience:

(a) <u>Teaching</u>

- **Post graduate Teaching,** 1995-date, Department of Chemistry, Ambrose Alli University, Ekpoma.

<u>Courses taught include:</u>

Advanced Chemical kinetics

Advanced Polymer Chemistry

Analysis of Experimental Data

I have mentored the following candidates:

Mr. W.C. Ozabor (M.Sc. Industrial Chemistry, 2004)

Mr. E.E. Egbon (Ph.D., Chemistry)

Mr. C. Ewansiha (Ph.D Chemistry)

- **Undergraduate teaching,** 1986-Date, Department of Chemistry, Ambrose Alli University, Ekpoma.

<u>Courses taught include:</u>

- Advanced Chemical Kinetics at 400 Level

- Polymer technology at 400 Level
- Physical Chemistry at 300 Level
- Polymer Chemistry at 200 Level
- Analytical Chemistry at 200 Level
- Physical Chemistry at 200 Level
- Inorganic Chemistry at 200 Level
- Organic, Inorganic and Physical Chemistry at 100 Level
- Supervision of over One Hundred (100) undergraduates' projects and seminars.
- I have published a good number of papers in learned journals.

(b) Research

(i) Research Interest

Basic Area: Polymer Chemistry

Research Focus: Development of new polymeric materials with high potential for application in polymer and allied industries.

Present Research Activity:

- Chemical modification of agricultural by – products for property enhancement.
- Studies in adsorption from aqueous solutions.

(ii) Publications

- **Dissertation and Theses**

1. Synthesis of 4 – Hydroxyl Nicotinic Acid and its condensation Reaction with Floroglucinol.
2. Graft – polymerization of Acrylonitrile and Acrylic Acid Monomers on Cellulosic Materials.
3. Chemical Stabilization of Poly (vinyl chloride) against Thermal Degradation.

- **Books**

1. Eguavoen, I.O., Ebhoaye, J.E., Osuide, M.O. and Egharevba, F. (1999), Basic University Chemistry, Chemistry Advancement Society, ISBN, 978-32816-9-0.

2. Basic University Chemistry Through Experiments, Ebhoaye (Ed.), Chemistry Advancement Society, ISBN-978-32816-6-6-6.

- **Chapters in Books.**

1. J.E. Ebhoaye (1999), "Acid, Bases and Salts" In University Chemistry Module I, Eguavoen (Ed.), Chemistry Advancement Society, ISBN-978-2884-030.

2. J.E. Ebhoaye (1999), "Basic Chemical Kinetics" In University Chemistry Module I, Eguavoen (Ed.), Chemistry Advancement Society, ISBN-978-2884-030.

3. J.E. Ebhoaye (1999), "Solubility Products" In University Chemistry Module I, Eguavoen (Ed.), Chemistry Advancement Society, ISBN-978-2884-030.

4. J.E. Ebhoaye (1999), "Basic Electrochemistry" In University Chemistry Module I, Eguavoen (Ed.), Chemistry Advancement Society, ISBN-978-2884-030.

- **Journal Articles**

Some Published Journal Articles

- Ebhodaghe F. Okieimen and Justus E. Ebhoaye (1986), Adsorption Behaviour of heavy metal ions on cellulose – graft – copolymer, J. Appl. Polym. Sci., 32, p. 4971-4976.

- **Abstract**

The adsorption behavior of cadmium, copper and lead ions on holocellulosic materials containing various levels of polyacrylonitrile and poly (acrylic acid) grafts was examined. The amount of metal ions adsorbed per gram of the modified cellulosic

substrate depended on the metal ion type, the nature and level of the incorporated graft polymer. In all cases grafting increased the metal ion-binding capacity of the cellulosic materials (by up to 50% for Cu (II) ions). The influence of temperature and initial metal ions concentration on the sorption behavior of the metal ions on the composite materials was investigated.

- Felix E. Okiemen and Justus E. Ebhoaye (1992), Thermal dehydrochlorination of PVC in the presence of metal soaps derived from rubber-seed oil, Eur. Polym. J., 28 (II), p. 1423-1425.

- **Abstract**

  Thermal degradation of PVC was studied in nitrogen in the presence of 3 wt% of the barium, cadmium and lead soaps from rubber seed oil. The time required for dehydrochlorination to attain 1% conversion (t_{DH}) and the rates of dehydrochlorination at 1% degradation (R_{DH}) in the presence of the metal soaps were compared with values obtained with the metal soaps from oleic and linoleic acids. The results from these kinetic studies, together with the data from viscosity measurements of t he degraded samples in cyclohexanone, show that the soaps from rubber seed oil are relatively effective in suppressing thermal dehydrochlorination of PVC and also that chain scission was a predominant reaction during the degradation of PVC in the presence of the metal soaps.

- J.E. Ebhoaye (2003), Studies in the preparation of oil-modified alkyd resins, Adv. In Nat. and Appl. Sci. Res., 1 (1), p. 51-60.

- **Abstract**

  Alkyd resins modified with rubber seed oil (RSO), cottonseed oil (CSO) and a 50/50 (v/v) blend of both oils were prepared from glycerol and phthalic anhydride using the alcoholysis method. The oils and the prepared alkyds were characterised in terms of specific gravity, acid value, saponification value and iodine value. The specific gravity of the oil samples was found to be 0.920 for RSO, 0.924 for CSO and 0.922 for the 50/50 (v/v) blend of both oils. The

acid values were 15.30, 3.22 and 10.43 mgKOH/g; while the saponification values were 190.04, 193.08 and 188.90 mgKOH/g for RSO, CSO and the blend of both oils respectively. The iodine values (IV) of the RSO, CSO and the blend of both oils were 16.50, 110.25 and 120.56 gI_2/100g respectively. The specific gravity of the alkyds varied from 0.950 for the CSO-modified alkyd to 0.954 for the RSO- modified alkyd, while the acid value varied from 4.39 for the RSO/CSO-modified alkyd to 9.72 mgKOH/g for the RSO-modified alkyd. The saponification value varied from 376.98 for the CSO-modified alkyd to 136.50 gI_2/100g for the RSO-modified alkyd, 2.35h for CSO-modified alkyd and 2.10h for alkyd modified with 50/50 (v/v) blend of the oils. The extent of esterification at the onset of gelation varied from 57.89% for the CSO – modified alkyd to 69.23% for the RSO – modified alkyd, the corresponding degree of polymerization varied from 2.37 to 3.25. The results suggest that significant conversions were attained at the onset of gelation.

- J.E. Ebhoaye J.O. Dada (2004), The effect of fresh and aged cassava processing effluents on the physio-chemical proper ties of soil, Pak J. Sci., Ind. Res., 47 (1), p. 13-16.

- **Abstract**

  Fresh cassava processing effluent was obtained from a cassava – processing mill in Ekpoma, Edo State. One half of the fresh effluent was used to pollute topsoil while the second half was aged for 7 days before use. The relative effects of the fresh and aged cassava effluents on the physio-chemical properties of soil were determined. The effects of pollution varied with the soil/effluent contact periods and the nature of the effluents. The result showed increases in the levels of pH, organic carbon, phosphorus, sodium, potassium; and decreases in calcium, magnesium and nitrogen in the soil after treatment with the effluents. There were no marked differences in the particle size distribution nature of the soil and the level of the exchangeable acidity after treatment with the effluents.

The results showed that the disposal on the top soil of fresh and aged cassava processing effluent could have diverse effects on the nutrient availability in the soil.

- J.E. Ebhoaye and A.P. Khadijah, (2011), Adsorption of Zine and Lead ions from Waste Water by Chemically Treated Rice Husks: Journal of Science and Technology Research, 10 (2) pages 110-114.

- **Abstract**

The conventional methods for treating waste waters are expensive. Consequently, the use of agricultural wastes as adsorbents for metal ions is being exploited because of the availability and low cost of the materials. Rice husks were carbonized at 400^0C and activated using 2.0 and 4.0 molar solutions of H_2SO_4 and KOH, respectively. The amounts of zinc and lead ions removed from waste water by the raw, carbonized and activated rice husks were examined by equilibrium sorption experiments at different metal ion-substrate contact periods. The results show that raw rice husks can bind substantial amounts of zinc and lead ions. For example, 46.34% of Z_n^{2+} ion and 48.94% of Pb^{2+} ion were adsorbed at a contact period of 50 minutes. There were general increases in the levels of metal ions adsorbed per unit mass of each adsorbent as the effluent-substrate contact period was increased from 10 minutes and these tend towards maximum value after 40 minutes of contact period. Carbonization did not appear to have produced any substantial increase in the amounts of Zn^{2+} and pb^{2+} ions removed from the waste water by the substrates. Activation with 2 molar and 4 molar solutions of H_2SO_4 and KOH greatly enhanced the adsorptive capacity of the materials with the level of metal ions uptake increasing with the molar concentrate of the activating agent. For any adsorbent, the amount of pb^{2+} ion removed from the waste water was higher than the amount of Zn^{2+} ion removed from the waste water.

- J.E. Ebhoaye and P.O. Oboh, (2011), Production and Characterization of Starch-Polyvinyl Alcohol Adhesive for Bottle Labeling: International Journal of Physical Sciences, 6(1) pg. 88-82.

- **Abstract**

Today, adhesives are produced in different parts of the World with a view to coping with the present day challenge of developing user friendly products that are cheap and reliable. This has led to the development of adhesives from various sources depending on the cost and availability of the raw materials. Starch-Poly Vinyl Alcohol (PVA) adhesives were prepared from 10% PVA and 10% starch slurry using various formulations with percentage variations of starch and PVA concentrations. The various adhesives were characterized in terms of the drying time, the peel strength, the moisture resistance, the resistance to soap solution, kerosene, heat and weather and the pot life. The results show that the drying time of the various adhesives increased from 27 minutes to 65 minutes as the percentage of PVA in the formulations was varied from 100% to 0%. The peel strength, the moisture resistance, the resistance to soap solution and the resistance to kerosene were generally good when the amount of PVA in the formulations was varied from 100% and 0%. The peel strength, the moisture resistance, the resistance to soap solution and the resistance to kerosene were generally good when the amount of PVA in the formulations was varied between 60% and 100%. The heat resistance property of the formulations was enhanced with increase in the amount of starch in the formulations while the resistance to weather was good for all the formulations. The observed stability of the formulations when exposed to weather and the enhanced pot life of all the formulations were attributed to the presence of PVA and the incorporation of formaldehyde in the formulations as preservative. In general, the adhesives exhibited good bonding characteristics.

5. Referees:

- **Professor F.E. Okieimen**
  Department of Chemistry,
  University of Benin,
  Benin City.

- **Professor O.I. Eguavoen**
  Department of Chemistry,
  Ambrose Alli University,
  Ekpoma.

- **Professor F. Egharevba,**
  Department of Chemistry,
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  Ekpoma.

Prof. Justus Ehijator EBHOAYE