

TITLE:**AUTHOR: Aléscio Fachim Pelicho****ABSTRACT**

Precipitation is an efficient pathway for removing the gases and particles from the atmosphere. The study of the chemical composition of precipitation waters, comes as important mechanism of evaluation the level of the air pollution, once, it is an efficient process of "cleaning " the atmosphere. The chemistry of precipitation is highly variable as a result of the different processes involved in element scavenging by cloud water and rain water. With the objective of evaluating the chemical composition of the atmospheric precipitations in Londrina, 350 rain waters samples were collected in the Campus of UEL, in the period of April/1998 to November/2002. The studies included the comparison among accomplished samplings in an integrated way, being used total (185 samples) and just humid (165 samples) of the 185 rain events deposition collectors. For the obtaining datas about the variability of the present species along the events the sampling sequential was accomplished. pH, condutance and levels of some inorganic íons measures (Na^+ , K^+ , NH_4^+ , Cl^- , NO_3^- and SO_4^{2-}) they were certain for photometry in flame, espectrophotometry and ionic chromatography, in all the samples collected in the period. The comparison of the two sampling types revealed that there are differences among the collectors as the ionic composition and analyzed conductivity. 34% (total collector) and 35 (humid collector) of the collected samples they were characterized as events of acid rain. The sources that causes of acidity in the precipitations, it is related the sources of continental origin, because influence of marine atmospheric masses was not evidenced in the sampling place. The results of sampling sequential showed that there is predominance of the phenomenon "washout ", due to the decline in the concentrations of all the chemical species analyzed in the fractions along the event, process of removal of the pollutants of the atmosphere during fall of the rain drops (below-cloud scavenging).