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Ichtyofaunal Diversity of the Rigth bank of Congo River (Pool Malebo), Congo

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Abstract

The present study was carried out in three stations (Kintele, Chacona and Port Leon) of the right bank of Congo River (Pool-Malebo) from January 2010 to December 2011. Monthly variations of physicochemical parameters and fish fauna diversity were observed. Among physiochemical parameters measured, conductivity and Total Dissolved Solid (TDS) varied following stations and months. 19317 specimens identified belonging to 165 species, 60 genera, 19 families and 8 orders. Shannon diversity index and equitability vary following prospection site and season. The relative specific abundance varies also following station and season. The most abundant species were Micralestes acutidens (16%) at Kintele (station1), Ctenochromis polli (15%) and Clypeobarbus pleuropholis(14%) at Chacona (station 2). Clypeobarbus pleuropholis (35%) dominate the collection of Port Leon (station 3). The present study will provide a database for conservation and fisheries departments to help them for a good management of icthyofauna conservation of Congo River.

Keywords: Congo River, ichthyofauna, physicochemical parameters, shannon index, equitability.

Introduction

The main threats to human activities weighing on biodiversity identified by the International Union for Conservation of Nature (IUCN) included destruction of habitat, fragmentation of habitat, habitat degradation (including that related to pollution), climate change, overexploitation of species, invasive exotic species and diseases spread[1]. This leads an acceleration of process of hinders to protect biodiversity[2,3]. Fish diversity has been declined to greater extent due to destruction of habitat both by natural and anthropogenic factors. Fish is used as a significant source of protein for millions of people around the world[4]. Fishes inventory is important for knowledge of fishes populations. Studies of spatial and temporal patterns of diversity, distribution and composition of freshwater fishes are useful to examine different factors that influence the structure of the fish community[5]. Fishes are also an important indicator of ecological health and the abundance and health of fish will show the health of water bodies[6]. Data so obtained will helps the environmentalist and policy makers to determine what course of action to be hepfull for the proper management and protection of fishes[4]. Fish fauna of the right bank of the Congo basin is poorly known. There are two decades a baseline study which summarized some studies on Congo Basin have been conducted.[7] The assessment of the icthyofaunal diversity of the right bank of the Congo Basin is underway last ten years, through differents works conducted to inventory fish fauna of the right bank tributaries of Congo River: in the Mambili River[8] ; in Alima River[9] ; in Likouala aux herbes[10]; in right bank of Congo River (Pool Malebo)[11]; in Lefini River[12] ; in Djiri River[13]. In present study, attempts have been made to collect, classify and identify fishes of right bank of Congo River (Pool-Malebo).

Material and Methods

Sampling of ichtyofauna was realized monthly with the castnet in three stations (Kintele, Chacona and Port Leon) located on the right bank of Pool-Malebo (Congo River) from january 2010 to december 2011 (figure-1). Five physicochemical parameters were measured (air temperature, surface water temperature, pH, conductivity and TDS), fishes has been collected using cast net, specimens after fixation in formalin 10% are preserved in alcohol 70%. Fishes so collected are identified using different keys available[8,14,15,16,17,18,19,20] and were classified following the Cloffa order[21,22,23]. The diversity of fishes was calculated by Shannon index[24] and equitability was deducted by Pielou's index[25].

Results and Discussion

Physicochemical parameters: Air temperature: Observations made during two successive years indicated that air temperature in all stations fluctuate between 25°C and (figure-2). The lowest values were observed in April-May 2010 to April 2011 at Chacona and Port Leon. Higher air temperatures were recorded in March 2010 at Kintele and Chacona.

The temperature of the surface water varied in the same manner in all stations (figure-3), the temperature varied between 26.5°C and 30.5°C. The lowest water temperatures in the three stations (26.5°C) are observed in July. The highest values were recorded at Kintele in February 2010 and in March 2011.**pH:** During the two years, the evolution of pH values seemed to be the same in all stations, the pH rose from February to September and began decrease in October, November and December. A slight decrease was observed in May and June 2010 in the three

stations, the same tendancy was observed at Chacona and Port Leon in May 2011(figure-4).

Total Dissolved Solid (TDS): The TDS values in the 3 stations superimposed monthly with a sharp fall in February 2010 (figure-5). Apart from this zero, the lower values were 10ppm at Chacona in January 2010 and Port Leon in December 2011. The biggest value (110ppm) observed at Port Leon in April 2011. Two peaks of low amplitude were recorded at the same station in October 2010 (43ppm) and January 2011 (32ppm).

Conductivity: Conductivity changed in the same way that the TDS, a sudden drop in conductivity is also observed in February 2010 in the three stations (figure-6). The minimum values were 20µS/cm) at Chacona in January 2010 and Port Leon in December 2011. The maximum value (218µS/cm) observed at Port Leon in April 2011. Two peaks of low amplitude were recorded at the same station in October 2010 (88µS/cm) and January 2011 (65 µS/cm).

Ichtyofauna composition: Monthly sampling of ichtyofauna was realized from January 2010 to December 2011 with the castnet in three stations (Kintele, Chacona and Port Leon), permitted to identify 19 317 specimens belonging to 165 species, 60 genera, 19 families and 8 orders. The table-1 showed ichtyofauna composition in the three sampling stations.

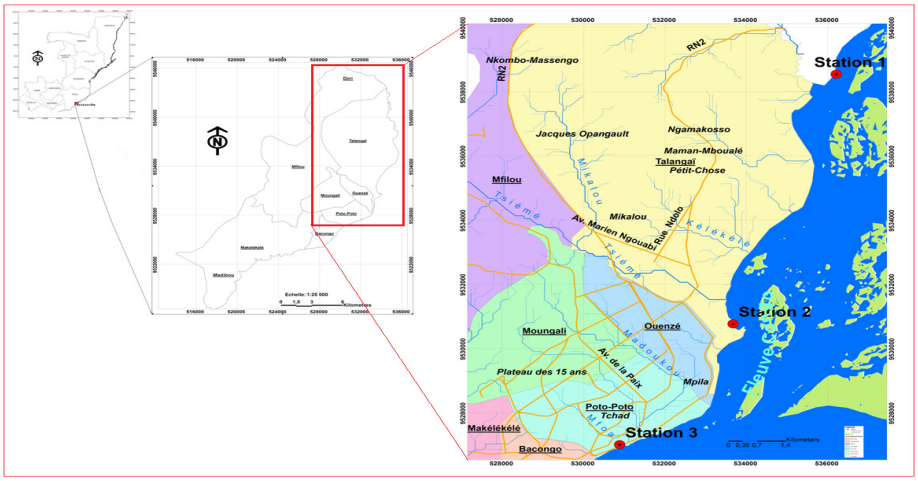

Figure-1
Sampling Area

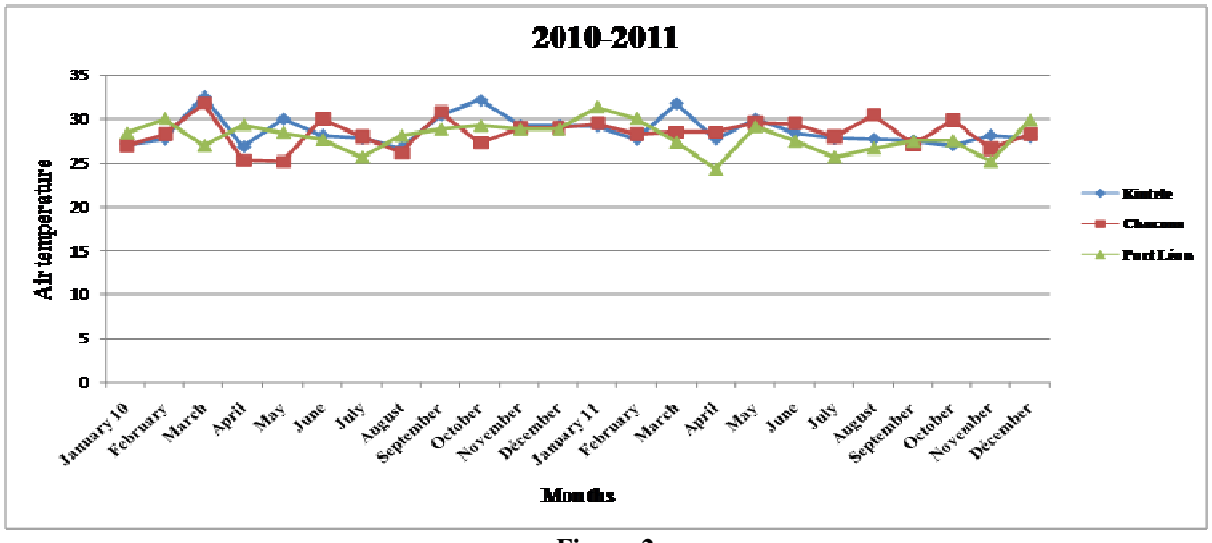

Figure-2
Spatiotemporal variation of air temperature

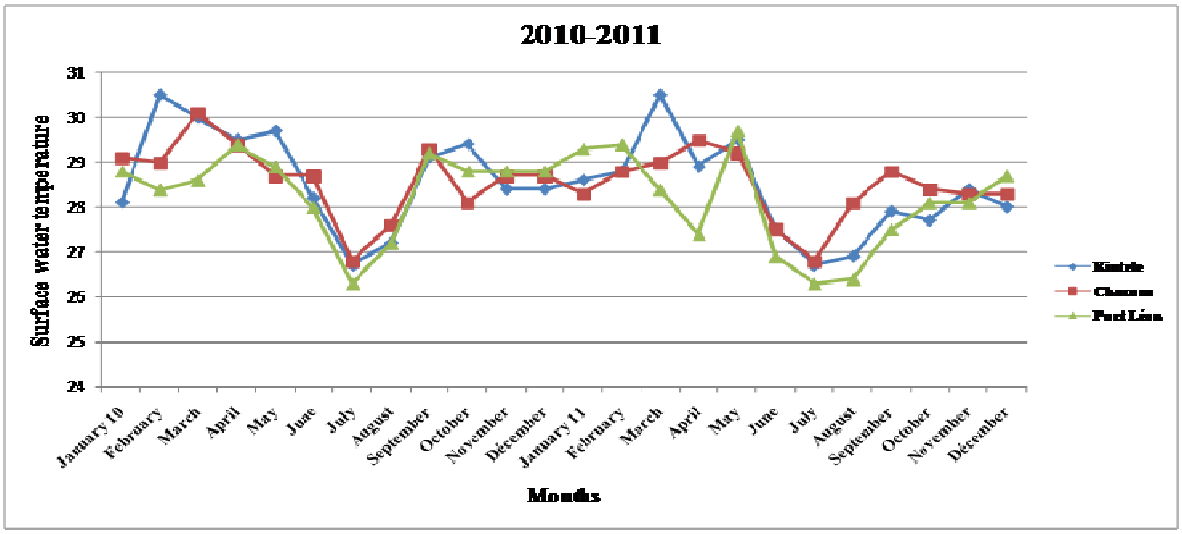

Figure-3
Spatiotemporal variation of temperature of the surface water

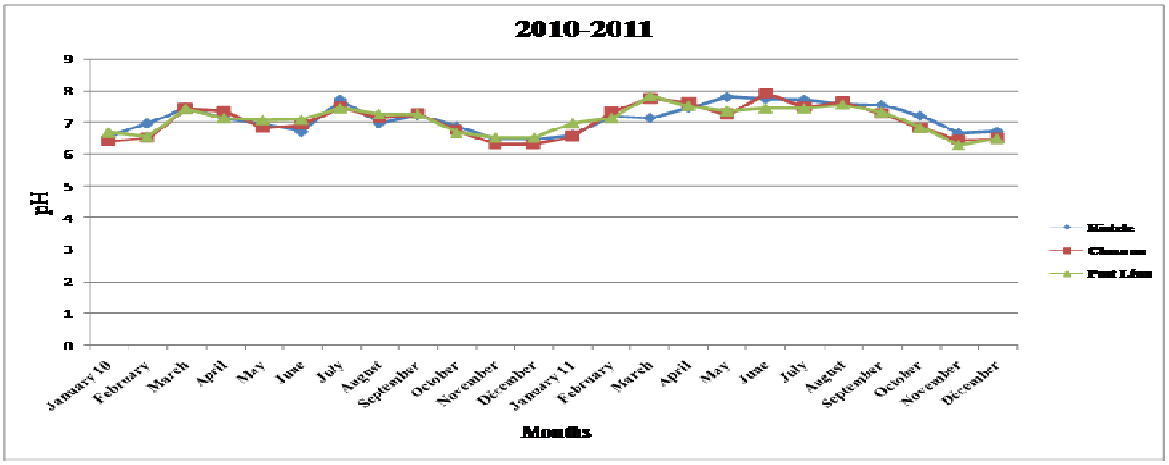

Figure-4
Spatiotemporal variation of pH

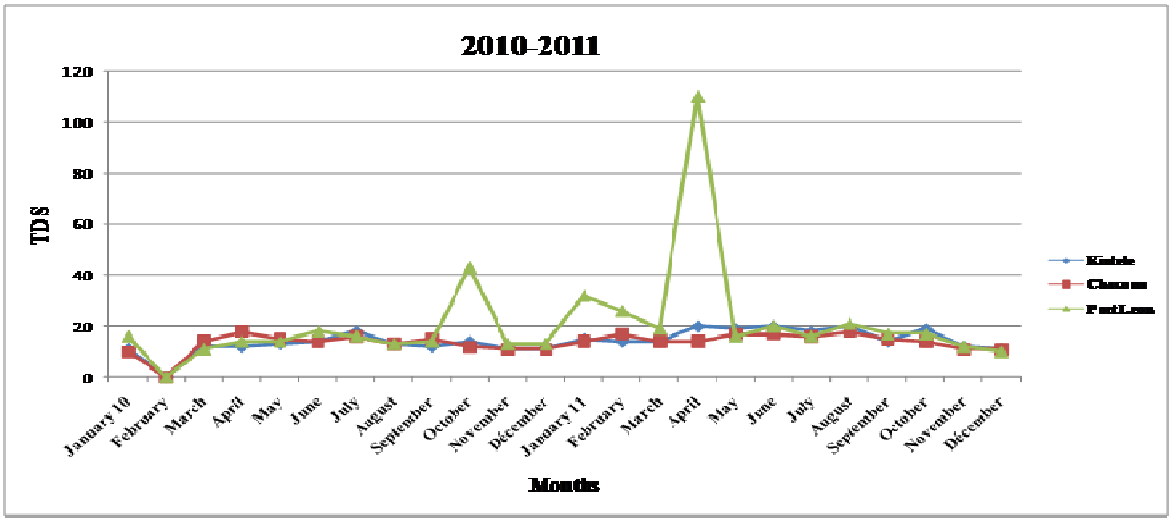

Figure-5
Spatiotemporal variation of TDS

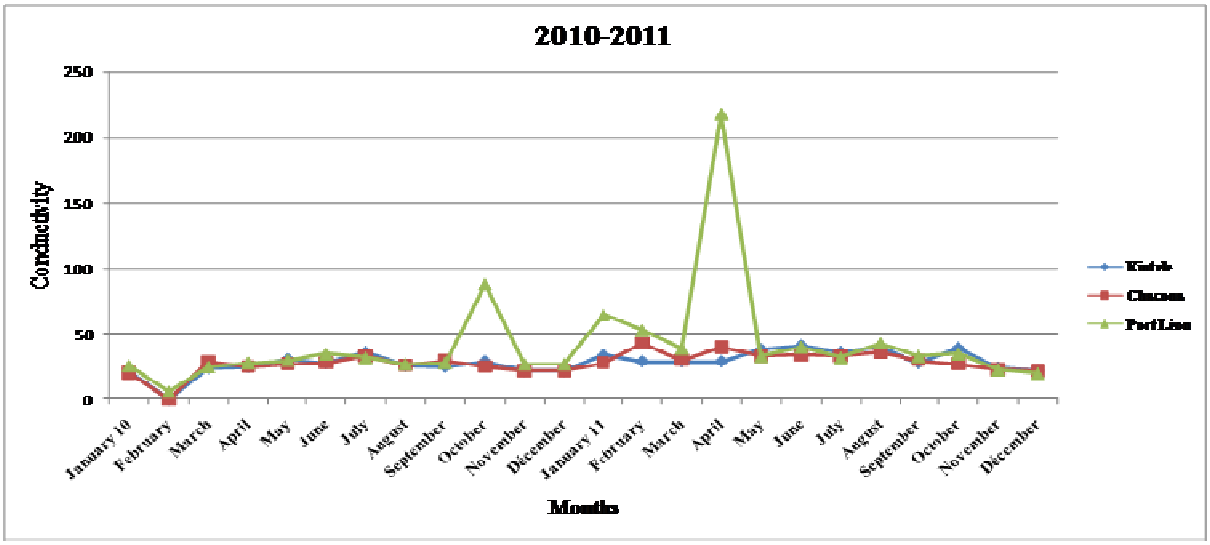

Figure-6
Spatiotemporal variation of conductivity

Table-1
List of identified species (January 2010-December 2011)

Order and Family	N°	Species	Code	St1	St2	St3
Osteoglossiformes						
Notopteridae	1	*Xenomystus nigri* (Günther, 1868)	XMN	+	+	-
Mormyridae	2	*Campylomormyrus elephas*(Boulenger, 1898)	CME	-	+	-
	3	*Campylomormyrus mirus* (Boulenger, 1898)	CMI	+	+	-
	4	*Campylomormyrus sp*	CMS	+	+	+
	5	*Campylomormyrus tamandua* (Günther, 1868)	CLT	+	+	+
	6	*Cyphomyrus discorhynchus* (Peters, 1852)	CMD	+	+	-
	7	*Cyphomyrus macrops* (Boulenger, 1909)	CMM	+	+	+
	8	*Cyphomyrus psittacus* (Boulenger, 1897)	CMP	+	+	+
	9	*Cyphomyrus sp1*	CPM	+	-	-
	10	*Cyphomyrus sp2*	CPR	+	-	-
	11	*Genyomyrus donnyi* Boulenger, 1898	GMD	+	+	+
	12	*Gnathonemus petersi* (Günther, 1862)	GNP	+	+	+
	13	*Gnathonemus sp*	GNS	+	+	+
	14	*Marcusenius greshoffi*	MCG	-	+	+
	15	*Marcusenius intermedius* Pellegrin, 1924	MCI	+	+	-
	16	*Marcusenius kutuensis* (Boulenger, 1899)	MCK	+	+	-
	17	*Marcusenius m. angolense* (Boulenger, 1905)	MMA	+	+	+
	18	*Marcusenius moorii* (Günther, 1867)	MCM	+	+	+
	19	*Marcusenius schuiltuisiae* (Boulenger, 1899)	MST	-	+	+
	20	*Marcusenius sp*	MSP	+	+	-
	21	*Marcusenius stanleyanus* (Boulenger, 1897)	MSL	+	+	+
	22	*Mormyrops anguilloïdes* (Linné, 1758)	MMA	-	+	+
	23	*Mormyrops sp*	MMR	+	+	+
	24	*Mormyrus bombanus* Boulenger, 1909	MMB	+	-	-
	25	*Mormyrus caballus* Boulenger, 1898	MMC	+	+	-
	26	*Mormyrus longirostris* Peters, 1852	MML	+	-	-
	27	*Mormyrus ovis* Boulenger, 1898	MMO	+	+	-
	28	*Mormyrus sp*	MMU	+	+	-
	29	*Myomurus macrodon* Boulenger, 1898	MMD	+	+	-

	30	*Petrocephalus balayi* Sauvage, 1883	PPB	-	+	-
	31	*Petrocephalus bane* (Lacépède, 1803)	PCB	-	+	-
	32	*Petrocephalus chrysti* Boulenger, 1920	PCC	+	+	+
	33	*Petrocephalus microphtalmus* Pellegrin, 1908	PCM	+	+	-
	34	*Petrocephalus sauvagi* Boulenger, 1887	PTS	+	+	-
	35	*Petrocephalus simus* Sauvage 1879	PCS	+	+	+
	36	*Petrocephalus sp1*	PCP	+	+	+
	37	*Petrocephalus sp2*	PTC	+	-	+
	38	*Pollimyrus nigripinnis* (Boulenger, 1899)	PMP	+	+	+
	39	*Pollimyrus sp*	PMS	+	+	+
	40	*Stomatorhinus fulginosus* Poll, 1941	STF	+	-	-
	41	*Stomatorhinus sp*	STS	+	-	-
Clupeiformes						
	42	*Microthrissa congica*	MTC	+	-	-
	43	*Microthrissa sp*	MTS	+	-	+
Clupeidae	44	*Odaxothrissa sp*	OTS	+	+	+
	45	*Pellonulla leonensis* Boulenger, 1916	PNL	+	+	+
	46	*Pellonulla vorax* Günther, 1868	PNV	+	+	+
Gonorhynchiformes						
Chanidae	47	*Parachanna insignis*	PCI	+	+	+
Cypriniformes						
	48	*Clypeobarbus pleuropholis* Boulenger, 1899	CBP	+	+	+
	49	*Labeo cyclorhynchus* Boulenger, 1899	LCR	+	+	+
	50	*Labeo greeni* Boulenger, 1902	LGN	-	+	+
	51	*Labeo lineatus* Boulenger, 1898	LLT	+	+	+
	52	*Labeo lualuabaensis*	LBL	-	+	-
	53	*Labeo nasus* Boulenger, 1899	LNS	+	+	-
	54	*Labeo parvus* Boulenger, 1902	LBP	+	+	-
	55	*Labeo sp1 noir*	LBC	+	+	-
Cyprinidae	56	*Labeo sp2*	LBN	-	+	-
	57	*Labeo sp3*	LBO	-	+	-
	58	*Labeo velifer* Boulenger, 1898	LVF	+	+	+
	59	*Labeo weeksi* Boulenger, 1909	LWK	+	+	+
	60	*Leptocypris lujae* Boulenger, 1909	LCL	+	+	+
	61	*Leptocypris weeksi* (Boulenger, 1899)	LCW	+	+	+
	62	*Raïamas buchholzi* (Peters, 1877)	RAB	+	+	+
	63	*Raïamas chrysti* (Boulenger, 1920)	RAC	+	+	-
Characiformes						
	64	*Alestes liebrechtsi* Boulenger, 1898	ALT	+	+	+
	65	*Alestopetersius sp*	APS	+	+	
	66	*Brycinus comptus* Roberts et Stewart, 1976	BCP	+	+	+
	67	*Brycinus imberi* Peters, 1852	BCI	+	+	+
	68	*Brycinus macrolepidotus* (Valenciennes, 1849)	BML	+	+	+
	69	*Brycinus poptae* Pellegrin, 1906	BPP	+	+	+
	70	*Brycinus sp*	BCS	-	-	+
Alestidae	71	*Bryconaethiops macrops* Boulenger, 1920	BAC	+	-	-
	72	*Bryconaethiops microstoma* Günther, 1873	BAM	+	+	+
	73	*Duboisialestes bifascatus* Poll,1967	DAB	+	-	-
	74	*Duboisialestes tumbense* Hoedeman, 1951	DAT	+	-	+
	75	*Hydrocynus forskali* (Cuvier, 1819)	HCF	-	-	+
	76	*Hydrocynus vittatus* (Castelnau, 1861)	HCV	+	-	+
	77	*Micralestes acutidens* (Peters, 1852)	MAT	+	+	+
	78	*Micralestes occidentalis* (Günther, 1899)	MCO	+	-	-

	79	*Micralestes stormsi* Boulenger, 1902	MSM	+	+	+
	80	*Micralestes sp*	MAS	+	+	+
	81	*Phenacogrammus interruptus* (Boulenger, 1899)	PGI	+	-	+
Citharinidae	82	*Citharinus congicus* Boulenger, 1897	CTC	-	+	+
	83	*Citharinus gibbosus* Boulenger, 1899	CTG	+	-	+
	84	*Citharinus latus* Muller et Troschel, 1845	CTL	+	-	-
	85	*Citharinus macrolepis* Boulenger, 1899	CTM	-	+	-
	86	*Citharinus sp*	CTS	+	-	+
Distichodontidae	87	*Belanophago hutsebauti* Giltay, 1929	BPH	+	-	-
	88	*Belanophago tinanti* Poll, 1939	BPT	+	-	-
	89	*Distichodus affinis* Günther, 1873	DCA	+	+	+
	90	*Distichodus altus* Boulenger, 1899	DCF	+	+	+
	91	*Distichodus antonii* Schilthuis, 1891	DCT	-	+	-
	92	*Distichodus atroventralis* Boulenger, 1898	DCN	-	+	+
	93	*Distichodus fasciolatus* Boulenger, 1898	DCC	+	+	+
	94	*Distichodus lussosso* Schilthuis, 1891	DCL	-	+	-
	95	*Distichodus notospilus* Günther, 1867	DCO	-	+	+
	96	*Distichodus sexfasciatus* Boulenger, 1897	DCS	+	+	+
	97	*Distichodus sp*	DCP	-	-	+
	98	*Hemistichodus cf mesmaekersi* Poll, 1959	HSM	-	+	-
	99	*Non identifié*	NIF	-	+	-
	100	*Ichtyborus ornatus* (Boulenger, 1899)	IBO	+	+	+
	101	*Mesoborus crocodilus* Pellegrin, 1900	MSC	-	+	+
	102	*Nannocharax macropterus* Pellegrin, 1926	NCM	+	-	-
	103	*Nannocharax gracilis* Poll, 1939	NCX	-	-	+
	104	*Nannocharax sp*	NCG	+	+	+
	105	*Phago boulengeri* Schilthuis, 1891	PBL	+	+	+
	106	*Xenocharax sp*	XCS	-	-	+
Siluriformes						
Claroteidae	107	*Auchenoglanis occidentalis* (Valenciennes, 1840)	AGO	+	+	-
	108	*Chrysichthys longibarbis* (Boulenger, 1899)	CIL	+	-	-
	109	*Chrysichthys ornatus* Boulenger, 1902	CIO	+	+	+
	110	*Chrysichthys punctatus* Boulenger, 1899	CIP	+	-	-
	111	*Chrysichthys sp 1*	CIS	+	+	+
	112	*Chrysichthys sp2*	CIT	+	-	-
	113	*Chrysichthys thonneri* Steindachner, 1912	CIH	+	+	+
	114	*Parauchenoglanis sp*	PCG	-	+	-
Schilbeidae	115	*Parailia congica* Boulenger, 1899	PLC	+	-	+
	116	*Schilbe grenfelli* (Boulenger, 1900)	SGF	+	+	-
	117	*Schilbe intermedius* Rüppell, 1832	SIT	+	+	+
Amphiliidae	118	*Belanoglanis tenius* Boulenger, 1902	BGT	-	+	-
Clariidae	119	*Clarias gariepinus* (Burchell, 1822)	CGP	-	+	+
	120	*Clarias sp1*	CRS	-	+	+
	121	*Clarias sp2*	CRP	-	-	+
Malapteruridae	122	*Malapterurus electricus* (Gmelin, 1789)	MPE	-	-	+
	123	*Malapterurus microstoma* Poll et Gosse, 1969	MPM	+	+	+
	124	*Malapterurus sp*	MPS	+	-	+
Mockokidae	125	*Microsynodontis sp*	MSD	+	+	-
	126	*Synodontis alberti* Schilthuis, 1891	SDA	+	+	+
	127	*Synodontis caudalis* Boulenger, 1899	SCD	-	+	-
	128	*Synodontis congicus* Poll, 1971	SDG	+	-	+
	129	*Synodontis decorus* Boulenger, 1899	SDD	-	+	+
	130	*Synodontis nigriventris* David,1936	SNV	+	+	+

	131	*Synodontis notatus* Vaillant, 1893	SNT	+	+	+
	132	*Synodontis nummifer* Boulenger, 1899	SNM	+	+	+
	133	*Synodontis schoutedeni* David,1936	SST	+	+	+
	134	*Synodontis sp1*	SDC	+	+	-
	135	*Synodontis sp2*	SDS	+	+	-
	136	*Synodontis sp3*	SDT	+	-	-
Synbrachiformes						
Mastacembelidae	137	*Mastacembelus congicus* (Boulenger, 1896)	MCC	-	+	-
Perciformes						
Centropomidae	138	*Lates niloticus* (Linneaus, 1758)	LNT	-	+	-
Cichlidae	140	*Ctenochomis polli* Thys Van Audenaerde, 1964	CCP	+	+	+
	141	*Ctenochromis sp*	CCS	-	+	+
	143	*Hemichromis elongatus* (Guichenot, 1859)	HCE	+	+	+
	144	*Hemichromis sp*	HCM	+	+	+
	145	*Hemichromis stellifer* Loiselle, 1979	HCS	+	+	+
	146	*Lamprologus casuerus*	LPM	+	+	+
	147	*Lamprologus mocquardi* Pellegrin, 1903	LPC	+	-	+
	149	*Lamprologus sp1*	LPS	-	+	+
	150	*Lamprologus sp2*	LPL	-	-	+
	151	*Nannochromis sp*	NCS	-	-	+
	152	*Oreochromis niloticus* Linneaus, 1758	OCN	-	+	+
	153	*Sarotherodon boulengeri* Pellegrin, 1903	STB	+	+	+
	154	*Sarotherodon galileus* Linneaus, 1758	STG	+	+	+
	155	*Sarotherodon sp*	STD	-	-	+
	156	*Tilapia tholloni* (Sauvage, 1884)	TTL	+	+	+
	157	*Tilapia sp*	TLS	-	+	+
	158	*Tylochromis lateralis* (Boulenger, 1898)	TCL	+	+	+
	159	*Tilapia zilli* (Gervais, 1848)	TTZ	+	+	+
	160	*Tylochromis sp*	TCS	+	+	+
Anabantidae	161	*Ctenopoma acutirostre* Pellegrin, 1898	CPA	-	+	-
	162	*Ctenopoma nebulosum* Norris et Teugels, 1990	CPN	+	-	-
Tetraodontiformes						
Tetraodontidae	163	*Tetraodon mbu* Boulenger, 1899	TOB	-	-	+
	164	*Tetraodon miurus* Boulenger, 1898	TOM	+	+	-
	165	*Tetraodon sp.*	TOS	-	+	-
Total species number				**117**	**120**	**101**

The overall specific richness is of 165 species, 117 species have been recorded in Kintélé, 120 at Chacona and 101 at Port Leon.

Specific richness of orders following the stations: Kintele had 7 orders, Chacona and Port Leon counted 8 orders. Proportional representation of species classified by order is indicated in the figure-7. Two orders dominate Osteoglossiformes and Characiformes followed by Siluriformes, Perciformes, Cypriniformes and Clupeiformes. Tetraodontiformes and Synbranchiformes are the orders less represented.

Many authors working on different rivers of the right bank of Congo River have found the same dominant orders: in Congo Basin[7]; in Mambili River[8]; in Alima River[9]; in Congo River (Pool Malebo)[11]; in Lefini River[12]; in Djiri River[13].

Specific richness of families following the station: The families number obtained varied from one station to another (figures-8a,8b,8c), the largest number of families (18) was identified at Kintele, Chacona and Port Leon had 15 families. In the three stations, six families dominate the collections in variable proportions: Mormyridae, Alestidae, Cyprinidae, Cichlidae, Mockokidae and Distichodontidae. Mormyridae was the dominant family in the 3 stations, these results corroborate those realized in the Congo Basin[8,9,11,12,13].

Spatiotemporal variation of Shannon index and equitability: There is no seasonal variation in the Shannon index and equitability at Kintele. On the contrary, variations were observed at Chacona where Shannon index and equitability in the dry season are higher than in the rainy season. At Port Leon, trend reversed the values of diversity indices in the dry season were lower than in the rainy season (figures-9a,9b).

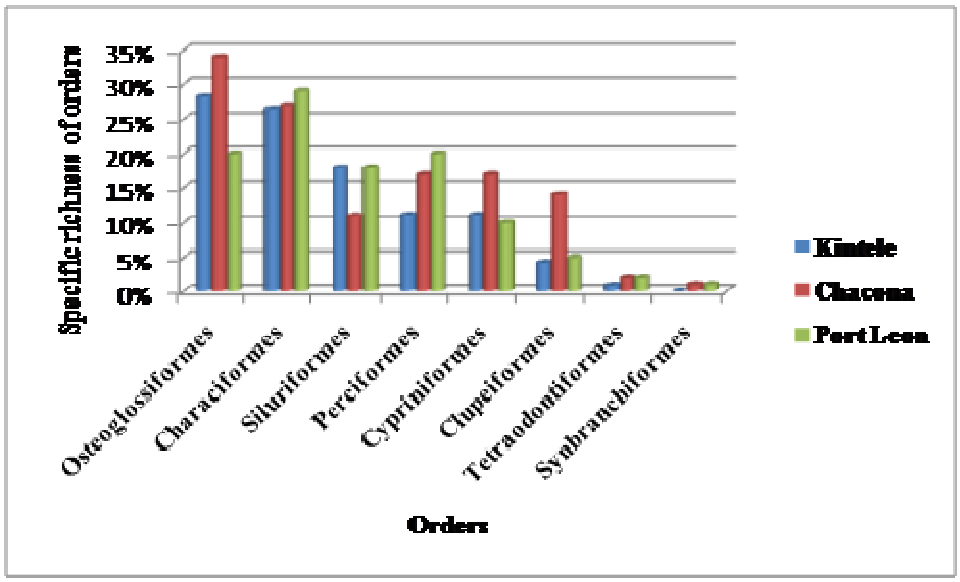

Figure-7
Specific richness of orders following the stations

Spatiotemporal variation of relative specific abundance: The overall relative abundance specific varied following stations (figures-10a,10b,10c). Three species are abundant Kintele: *Micralestes acutidens* (16%), *Ctenochromis polli* (11%) and *Tilapia tholloni* (9%). A Chacona, the most abundant species were: *Ctenochromis polli* (15%), *Clypeobarbus pleuropholis* (14%) and *Micralestes acutidens* (9%). In Leon port, one species, *Clypeobarbus pleuropholis* dominated with 35%, followed by *Tilapia tholloni* (7%) and *Schilbe intermedius* (7%).

The specific relative abundance also varied according to seasons, the distribution for the four main species changed from one station to another (figures-11a,11b,11c). At Kintele most abundant species was *Tilapia tholloni* 12%), *Ctenochromis Polli* (11%), *Micralestes acutidens* (11%) and *Schilbe intermedius* (9%). At Chacona, the most abundant species was *Ctenochromis polli* (19%) followed by *Clypeobarbus pleuropholis* (13%), *Micralestes acutidens* (10%) and *Brycinus comptus* (10%). The most abundant species at Port Leon, was *Clypeobarbus pleuropholis* (14%), *Tilapia tholloni* (11%), *Schilbe intermedius* (8%) and *Sarotherodon boulengeri* (6%). The difference observed at Port Leon could be explained by the water pollution caused by presence of garbage transported by Mfoa River which flows into the Congo River.

In dry season, the profile changed specific relative abundancy within the same stations and between stations compared to rainy season (figures-12a,b,c). During this season, the most abundant species in Kintélé was *Micralestes acutidens* (19%) followed by *Ctenochromis polli* (10%), *Tilapia tholloni* (8%) and *Clypeobarbus pleuropholis* (8%). At chacona, the highest relative abundancy was *Clypeobarbus pleuropholis* (16%), *Schilbe intermedius* (12%), *Parailia congica* (6%) and *Petrocephalus chrysti* (5%). In Port Leon, *Clypeobarbus pleuropholis* was the only species that dominated with 59%. This difference could be explained by the water pollution caused by presence of garbage transported by Mfoa River which was more important during dry season.

Specific affinities between stations: The hierarchical classification including the specific richness of three stations (figure-13), showed some differences between the data stemming from various sampled stations. The stations Kintele and Chacona were similar, Port Leon station was different to the two others. This difference could be explained by the presence of garbage transported by Mfoa River.

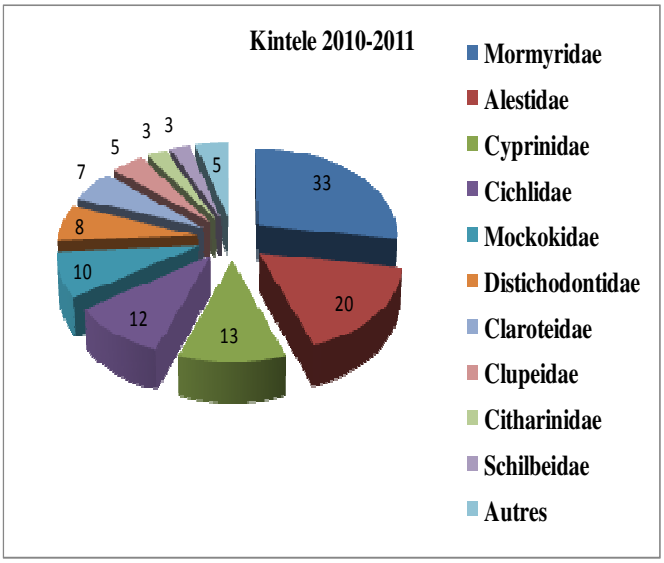

Figure-8a
Specific richness of families in Kintele

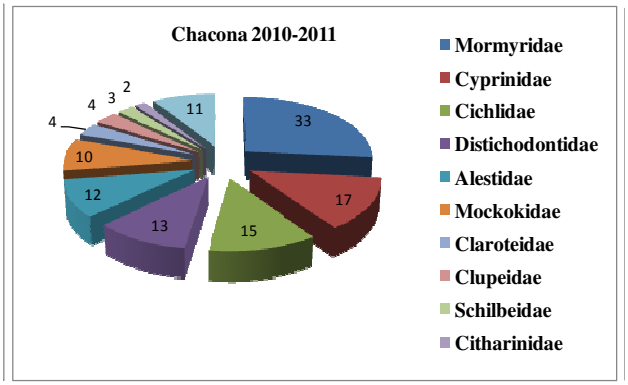

Figure-8b
Specific richness of families in Chacona

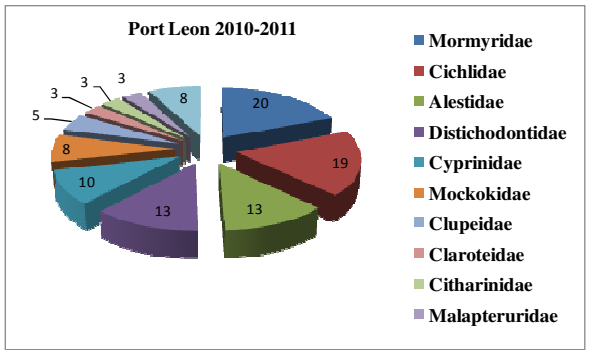

Figure-8c
Specific richness of families in Port Leon

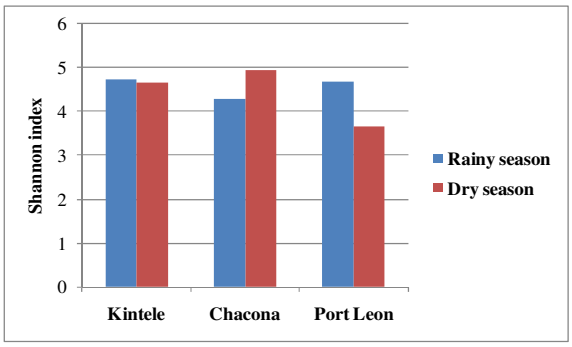

Figure-9a
Spatiotemporal variation of Shannon index

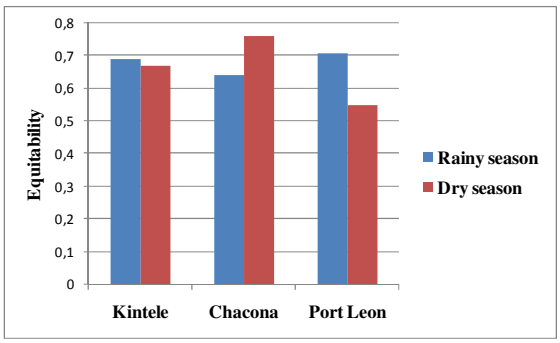

Figure-9b
Spatiotemporal variation of equitability

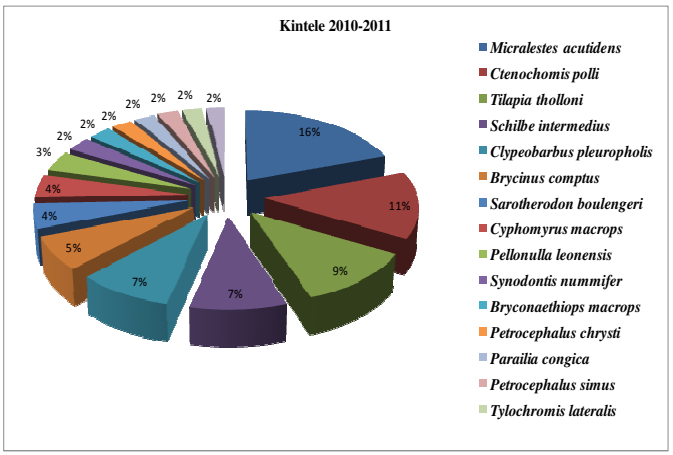

Figure 10a
Global spatiotemporal variation of relative specific abundance in Kintele

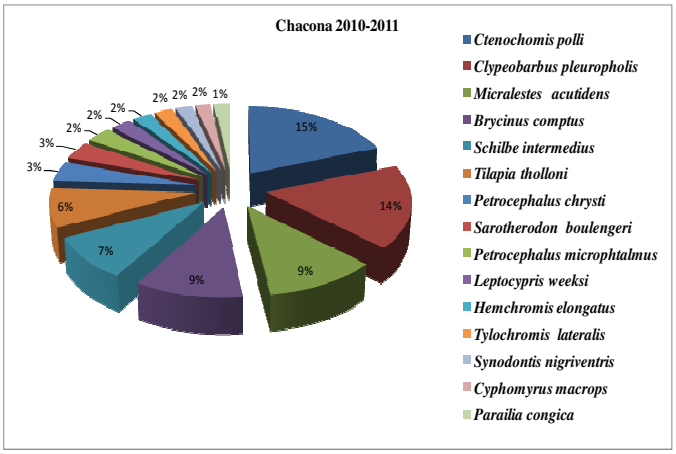

Figure 10b
Global spatiotemporal variation of relative specific abundance in Chacona

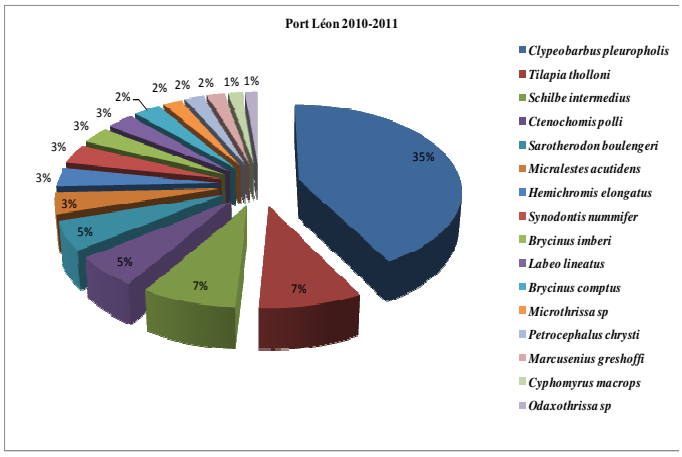

Figure 10c
Global spatiotemporal variation of relative specific abundance i Port Leon

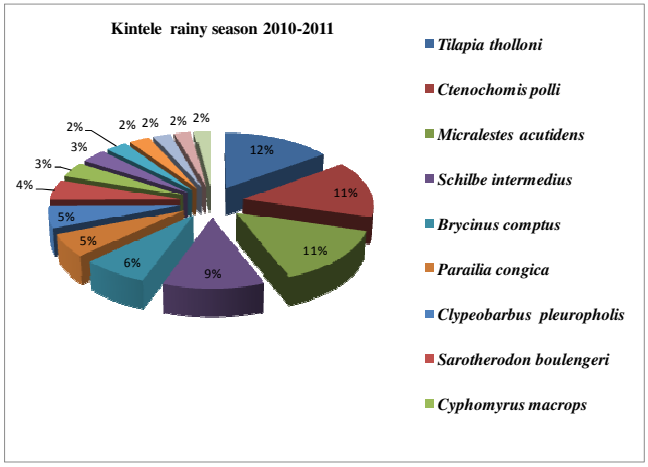

Figure-11a
Variation of relative specific abundance during rainy season in Kintele

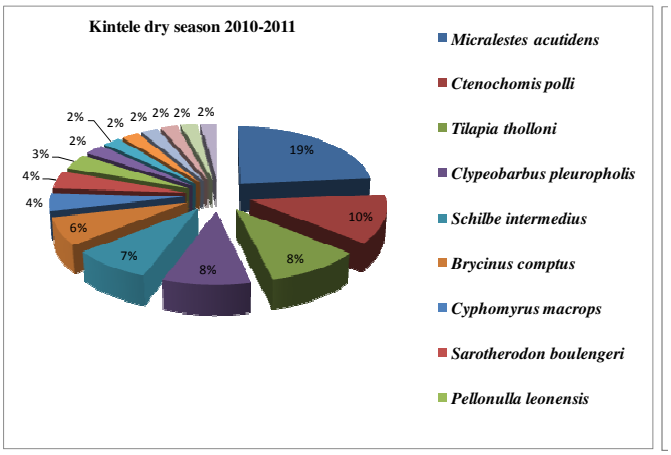

Figure-12a
Variation of relative specific abundance in dry season in Kintele

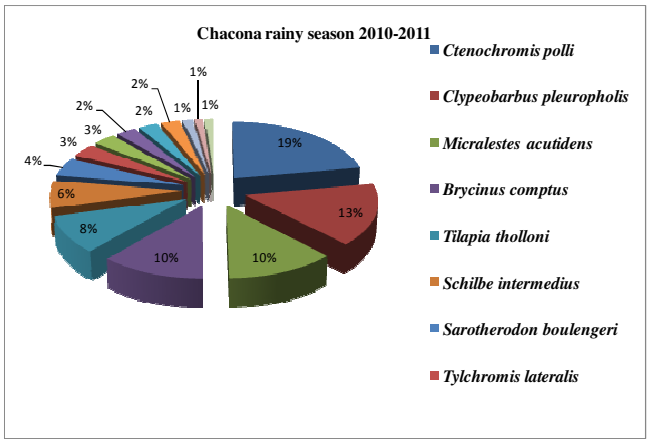

Figure-11b
Variation of relative specific abundance during rainy season in Chacona

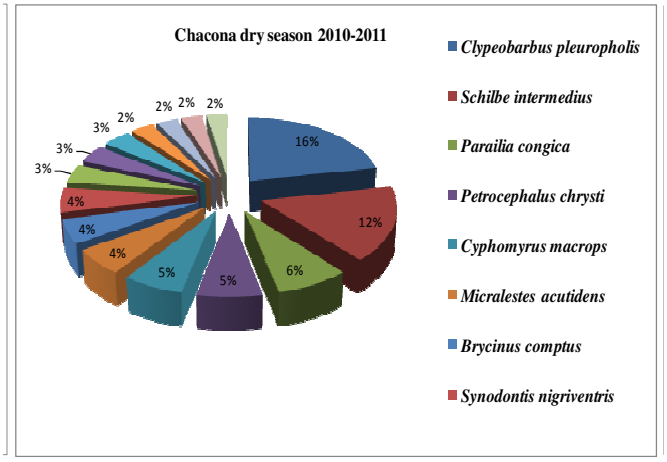

Figure-12b
Variation of relative specific abundance in dry season in Chacona

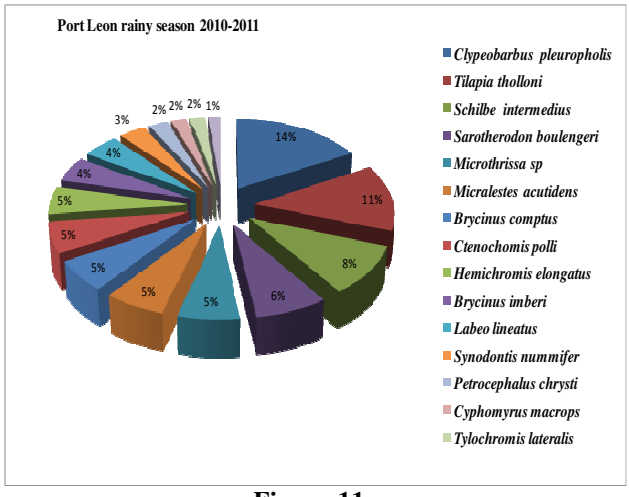

Figure-11c
Variation of relative specific abundance during rainy season in Port Leon

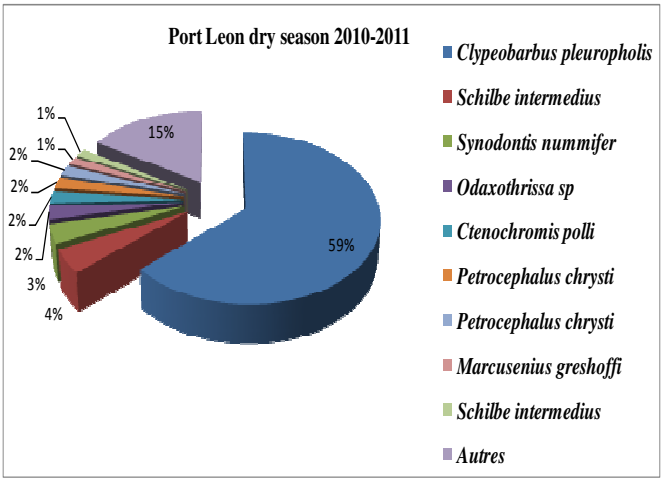

Figure-12c
Variation of relative specific abundance in dry season in Port Leon

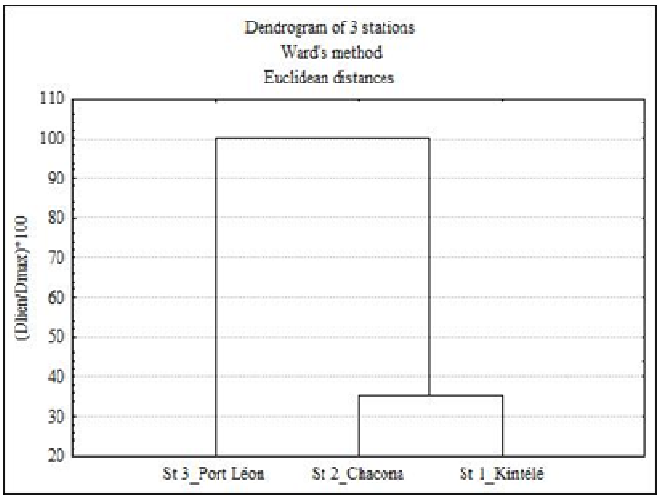

Figure-13
Dendrogram of specific richness in the stations

Conclusion

The study of ichtyofauna diversity realized on the right bank of Pool-Malebo in three stations Kintele, Chacona and Port Leon, showed that the specific richness was greater. The fish population wass very diversified in the three stations, shannon index was superior to 4.2 in rainy season and superior to 3.5 in dry season. The values of equitability in Kintele indicated that population of this station is balanced, Chacona population is balanced in dry season but sligthly unbalanced in rainy season. Port Leon was very different than the two others by the specific richness and there was seasonal change in equitability which was less in dry season than in rainy season. The present study will provide a database for conservation and fisheries departments to help them for a good management of icthyofauna conservation of Congo River.

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