

# PREVALENCE OF TOXOPLASMOSIS INFECTIONS IN WOMEN FROM THE NORTH WEST REGION AND WEST REGION OF CAMEROON



Choumessi T. Aphrodite<sup>1</sup>, Nantia Akono Edouard<sup>1</sup>, Matho T. Flavine<sup>1</sup>, Lem A. Edith<sup>2</sup>, Che P. Funwi<sup>2</sup>, Mbouobda HD<sup>3</sup>

<sup>1</sup>Dept. of Biochemistry, Faculty of Science, University of Bamenda, PO Box 39 Bambili, Cameroon;  
<sup>2</sup>Dept. of Biological Sciences, Faculty of Science, University of Bamenda, PO Box 39 Bambili, Cameroon.  
<sup>3</sup>Dept. of Biology, Higher Teacher Training School, University of Bamenda, PO Box 39 Bambili, Cameroon.  
 Correspondence: [achoumessi@yahoo.fr](mailto:achoumessi@yahoo.fr)

## 1. INTRODUCTION

Toxoplasmosis is a zoonotic protozoal disease of humans and animals caused by the coccidian parasite, *Toxoplasma gondii*. Infection by *T. gondii* is widely prevalent in humans, and nearly one-third of humanity has been exposed to this parasite (Dubey, 2010). It can cause congenital infections and may lead to permanent disability or defects in the fetus for whole life (Remington, 1995). Though the disease is widely prevalent in developing countries, very limited studies have intended to actually assess the problem in Cameroon. This study then aimed to evaluate the prevalence of toxoplasmosis in West and North West Region of Cameroon using retrospective analysis. To this end data of toxoplasmosis laboratory results were collected in North West (Bafut district hospital) and West (Mbouda district hospital, Ad-Lucem Mbouda hospital, hospital protestant de Montchio-Mbouda) Regions of Cameroon in females from 5 years period that is from 2010 – 2014. This study will be providing data to understand the actual epidemiologic situation and the impact of this disease in our local population. Such results may help encourage different stakeholders to undertake actions for better prevention and treatment of toxoplasmosis in our regions.

## 2. Methodology

Hospitals and health centers of large consultation located in capitals of divisions in West and North West Regions were considered as studied sites namely:

- ✚ The Presbyterian Health Center Nsem, Bafut (Mezam division, North West Cameroon)
- ✚ The Mbouda district hospital, Mbou and Ad-Lucem hospitals in Mbouda (Bamboutos division, West Region Cameroon).

Laboratory results concerning females patients were collected on a period a 5 years from 2010 to 2014 in different health centers from laboratory records.

The data were entered in Microsoft excel 2010 and analyzed using SPSS 20.0. The results are presented in the tables and figures.

## 3. RESULTS

### TOXOPLASMOSIS INFECTION CASES IN THE LOCALITIES

Table 1: Toxoplasmosis cases in localities

Year	NW		West	
	+ cases	Total	+ cases	Total
2010	104	1146	52	121
2011	18	1336	60	140
2012	18	1460	60	260
2013	93	1522	114	341
2014	20	1336	120	466

Though the locality of the West region received less patients, the cases of *T. gondii* infections are more important in that region than in North West Region. This gap in infection could be due to the difference in the hygienic conditions in the 2 localities.

### MONTHLY DISTRIBUTION OF TOXOPLASMOSIS

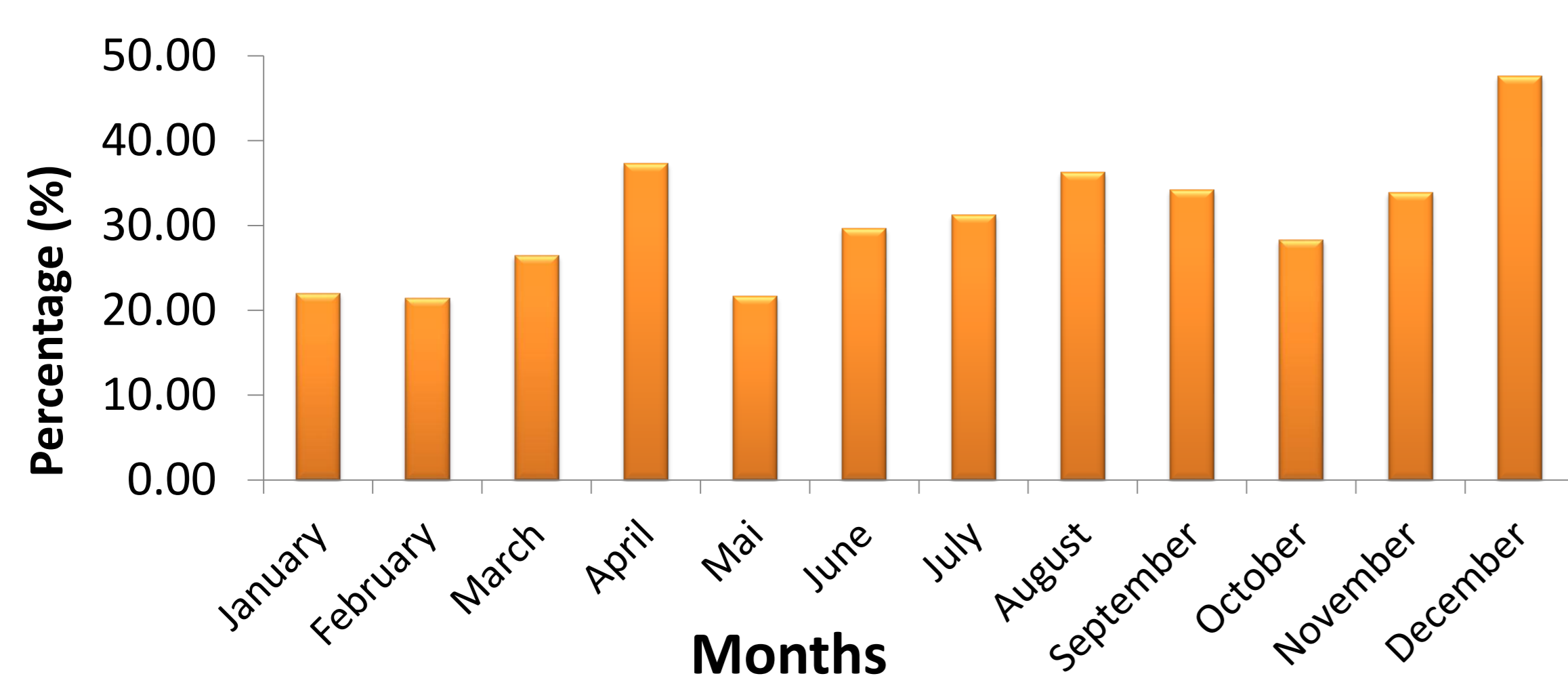


Figure 1: Cumulative monthly toxoplasmosis seroprevalence in WR.

The prevalence of toxoplasmosis varied throughout the months. April, August, September, November and December scored the highest infection rates with 37.29, 36.27, 34.18, 33.86 and 47.62%, respectively. The monthly variation of the prevalence of this diseases could be attributed to seasonal climatic condition and abundant consumption of raw and not well cooked foods during certain periods of the year. Similar rates were however observed in some African countries per year including Benin (47%), Egypt (36%), Morocco (44%) and Sudan (36%) (Flegr et al., 2014).

### TOXOPLASMOSIS PREVALENCE ACCORDING TO THE AGE

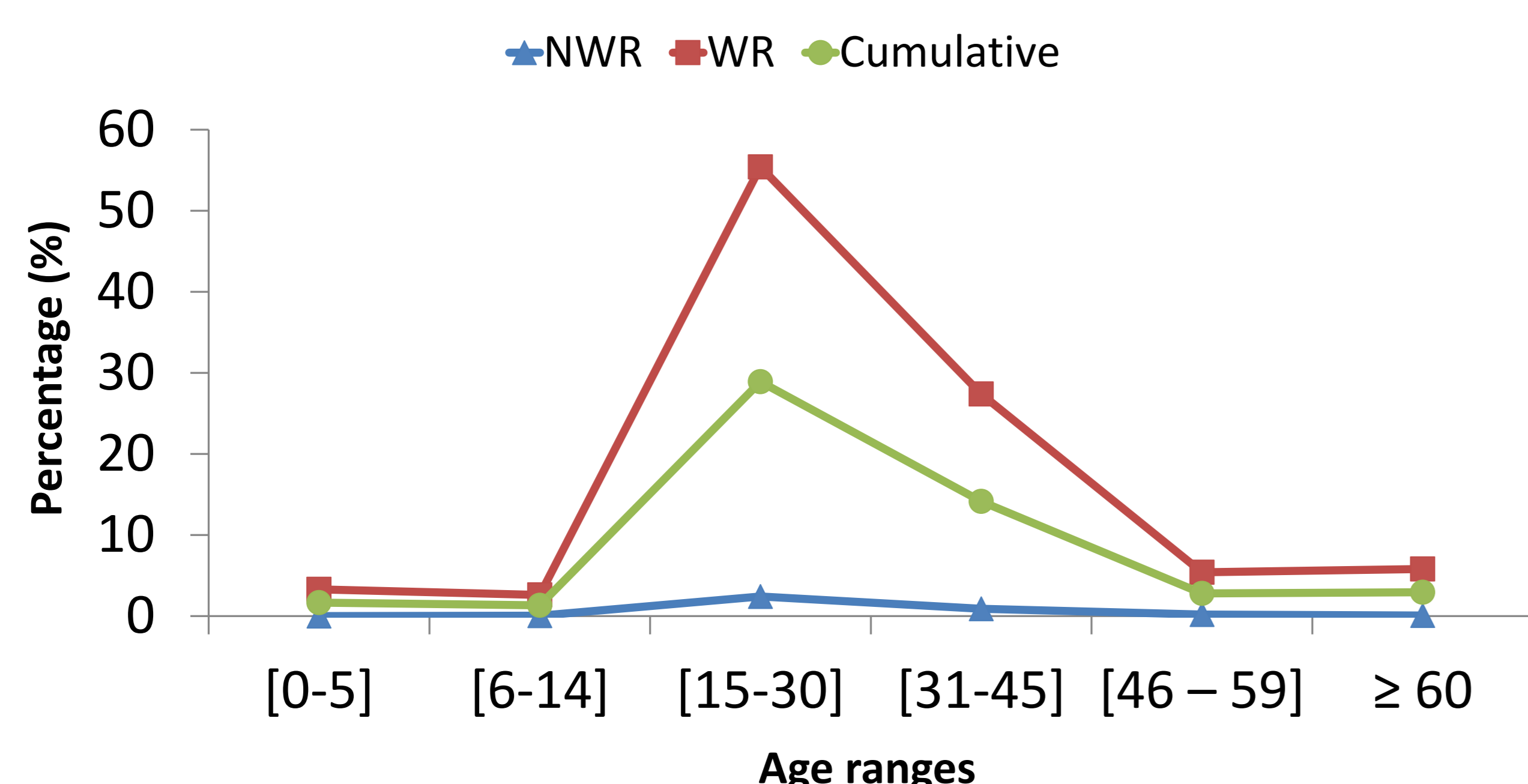


Figure 2: Prevalence of toxoplasmosis according to age ranges in West and North West regions of Cameroon.

According to age ranges, the highest prevalence of toxoplasmosis was noted in women of 15 – 30 years old in both localities (WR : 55.4%, NWR: 2.42%) with cumulative prevalence of 28.91%. The high infection rate in this age group could be justified by the active reproductive activity at such ages. This is consistent to the seroprevalence among pregnant women in Asian (0.8% - 28.3%) and is in line with the prevalence observed in African countries (23 - 84%) (Agmas et al., 2015). Independent to the region, *T. gondii* infection is practically negligible before 14 and after 46 years old.

### TOXOPLASMOSIS INFECTION OVER THE YEARS

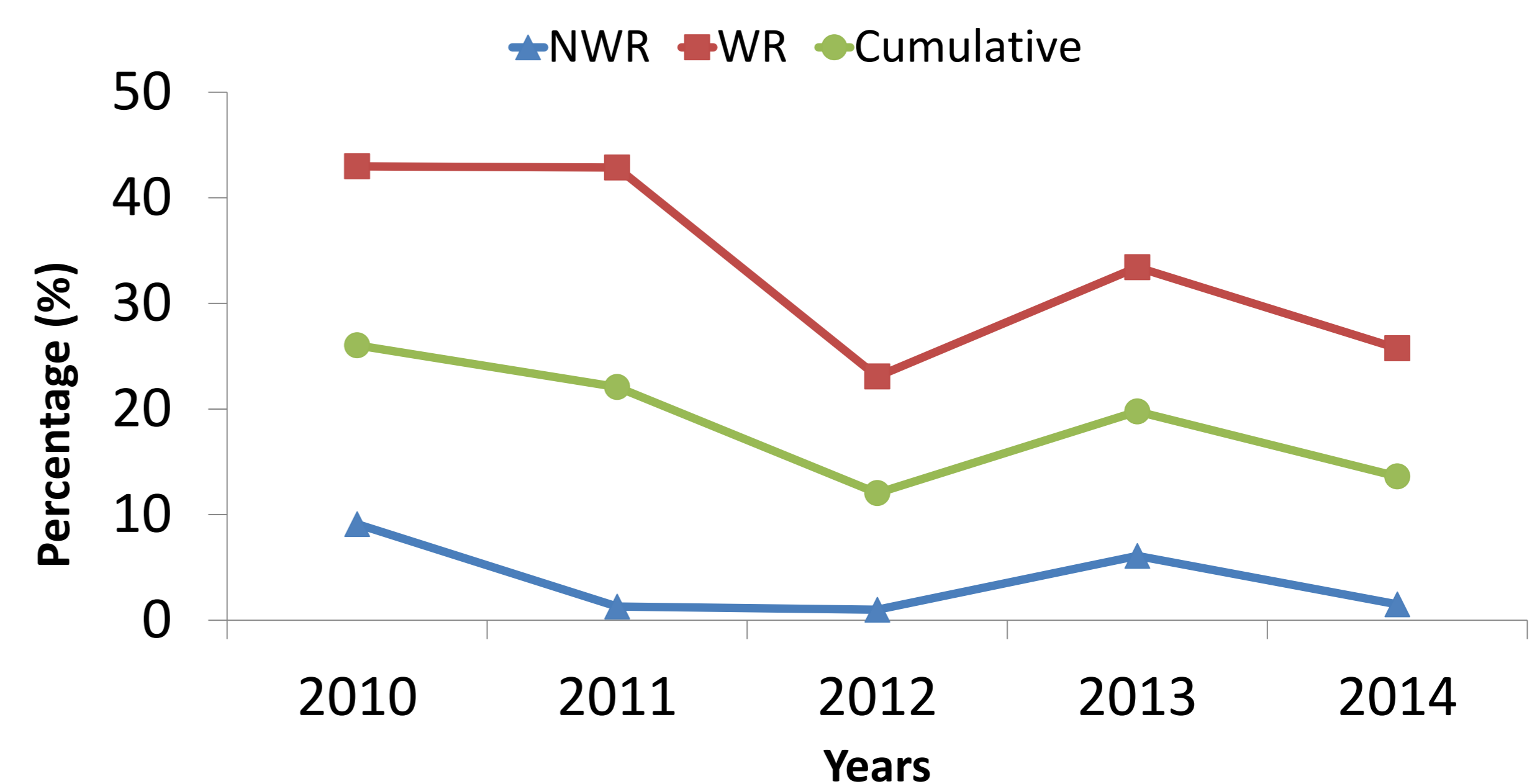


Figure 3: Evolution of the prevalence of toxoplasmosis over the years in West and NW regions of Cameroon.

In general the 2 regions do not present the same infection rate and trend from 2010. The NWR prevalence peaked in 2010 (9.1%) and 2013 (6.1%). In the West region (WR), toxoplasmosis rates peaked in 2011 (42.86%) and 2010 (42.98%). In general Toxoplasmosis rate remained constantly high in the WR while its evolution varied in the NWR over years. Together the West and North West Regions of Cameroon showed evolution of toxoplasmosis infection varying from 26.04 to 13.63% from 2010 to 2014. Such results indicates that data should be collected on a more longer period of time for a better appreciation of the prevalence of this parasitic infection in the localities. Such prevalence are lower than the ones obtained in Europe (20% to 85%) but close to the prevalence in United States (12% to 41%) (Jones et al., 2003) and higher than the prevalence in Japan (8-10%) and China (11%) (Flegr et al., 2014).

## 4. CONCLUSIONS

- ✓ Toxoplasmosis is largely prevalent in West and North Regions of Cameroon with an infection rate varying from 13.63 to 26.04% over the years, and . April and December are the months with highest infection rates in the West region.
- ✓ Indications from the past 5 years showed that *T. gondii* is quite constant.
- ✓ The most affected age group for toxoplasmosis is from 15-30 years old with prevalence of 2.42 to 55.4 % in the NWR and WR, respectively.
- ✓ There is therefore an urgent need for more sensitization (for prevention) concomitantly with an effective treatment of the diseases.

## 5. REFERENCES

- Remington JS, Klein JO (1995). Infectious Diseases of the Foetus and Newborn Infants. 4th edn. W. B Saunders Company, Philadelphia, pp 140–266.
- Dubey JP (2010). Toxoplasmosis of animals and humans: Boca Raton, Fla., CRC Press, 313 p. 4.
- Jones JL, Kruszon-Moran D, Wilson M (2003). Toxoplasma gondii infection in the United States, 1999-2000. Emerg Infect Dis 9:1371-4.
- Flegr J, Prandota J, Sovic'kova' M, Israili ZH (2014) Toxoplasmosis – A Global Threat. Correlation of Latent Toxoplasmosis with Specific Disease Burden in a Set of 88 Countries. PLoS ONE 9(3): e90203.
- Agmas B, Tesfaye R and Koye ND (2015). Seroprevalence of Toxoplasma gondii infection and associated risk factors among pregnant women in Debre Tabor, Northwest Ethiopia. BMC Research Notes, 1-7

## ACKNOWLEDGMENT

The authors gratefully acknowledge the medical personnel of different health units for their active collaboration in the realization of this study.