

REPUBLIQUE DU CAMEROUN
Paix – Travail – Patrie

MINISTERE DE LA RECHERCHE
SCIENTIFIQUE ET DE L'INNOVATION

INSTITUT DE RECHERCHES MEDICALES ET
D'ETUDES DES PLANTES MEDICINALES

CENTRE DE RECHERCHES EN SANTE ET
SUR LES PATHOLOGIES PRIORITAIRES

LABORATOIRE DE BIOLOGIE MOLECULAIRE
ET DE BIOTECHNOLOGIE

UNITE D'IMMUNOBIOLOGIE DES INFECTIONS
AUX HELMINTHES



REPUBLIC OF CAMEROON
Peace – Work – Fatherland

MINISTRY OF SCIENTIFIC
RESEARCH AND INNOVATION

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MEDICINAL PLANTS STUDIES

CENTRE FOR RESEARCH ON HEALTH AND
PRIORITY PATHOLOGIES

LABORATORY OF MOLECULAR BIOLOGY
AND BIOTECHNOLOGY

UNIT OF IMMUNOBIOLOGY AND
HELMINTH INFECTIONS

Official Report of the 1st Schistosomiasis day at IMPM, Yaoundé, Cameroon, funded by the Wellcome Centre for Integrative Parasitology of the University of Glasgow, Scotland

History and Synopsis

The idea of the organization of a day of scientific exchanges and communion of people to focus on the problem of schistosomiasis locally stemmed from long term discussions between Dr Claudia Demarta-Gatsi (Merck Global Health Institute, Switzerland) and Dr Justin Komguez Nono (IMPM, Cameroon). The idea was later on pitched to Ms Hannah Bialic from the Wellcome Centre for Integrative Parasitology (WCIP) of the University of Glasgow, Scotland, during the Scottish Schistosomiasis workshop organized in September 2022 in Glasgow by the team of Prof Poppy Lamberton. An idea she liked and pledged WCIP financial and technical support in accompanying this event in Cameroon. The goals of the event were to foster community ownership by getting local actors (more) aware of the right attitude towards prevention of infection and control, highlight ongoing local scientific research and consolidate the local network of schistosomiasis researchers. As such the event needed to be inclusive of most parts of a country in terms of representation; a stretch rendered possible in Cameroon by the financial support of the Wellcome Centre for Integrative Parasitology of the University of Glasgow in Scotland and the operative contribution of their public engagement manager, Ms Hannah Bialic, brought onboard following discussions at the Scotland's Schistosomiasis Workshop in September 2022 in Glasgow.

On July 26th, 2023, the first schistosomiasis day (awareness and scientific networking) took place in the Conference Hall of the Institute for Medical Research and Medicinal Plant (IMPM) Studies in Yaoundé Cameroon. This '**Schistosomiasis day**', aimed to raise awareness among university

students of the disease spread and its possible complications on health and consequently on society by involving them in the fight against the disease.

Participation and sponsoring

The schistosomiasis day was a day of sensitization and exchanges between all prominent local actors involved in the research and management of schistosomiasis as well as university students and civil society members willing to get involved in the fight against schistosomiasis in Cameroon.

Applications were received from all over Cameroon with 47 registrations received online and the rest onsite for a total of **110 participants**. A total of 22 abstracts for oral communication were received and 9 were selected by the scientific committee (Hannah Bialic from WCIP, Dr Justin Komgouep Nono, Dr Adela Ngwewondo-Ngwa, Dr Nana Rodrigue and Dr Gabriel Agbor from IMPM and Dr Claudia Demarta-Gatsi from Merck KgaA Global Health Institute).

The **110 participants** hailed from at least 13 different institutions representing 7 of the 10 regions of Cameroon:

- Public Universities of Yaoundé 1, Buea, Bamenda, Ngaoundéré, Douala, Dschang and Garoua
- Private Universities of (Catholic University of Central Africa) ESS-UCAC and Santa Monica University Higher Institute.
- Staff of the National Control Program for the fight against Schistosomiasis and Soil-transmitted Helminthiases from the Ministry of Public Health of Cameroon
- Staff from the Ministry of Scientific Research and Innovation of Cameroon
- Major local research Centres dealing with infectious Diseases research i.e. OCEAC (Organisation de Coordination pour la lutte contre les Endémies en Afrique Centrale), CSP (Centre de Schistosomiase et de Parasitologie) and ISM (Higher Institute for Scientific and Medical Research).
- Non-governmental Organization (MybeatNTDs) et
- Several members of communities (mid-wives, traders, journalists, housewives)



It is important to note that applications were also received from foreign institutions such as (Leiden University Medical Centre, The Netherlands; MRC Entebbe, Uganda and Chad), but could not be considered due to limited funds thus our inability to offer befitting travel and accommodation grants.

Installation and Kick-off

The ‘Schistosomiasis day’ began on July 26th, 2023 at 08h00 with the registration of participants (each provided with a conference pack i.e. badge, bag, writing material, and QR code for the entry questionnaire on Schistosomiasis generalities).



Participants arriving to the Conference Hall of IMPM equipped with online broadcasting system.



The Kick-off took place at 09h45 with the arrival of the Director General of IMPM, represented by his deputy, Dr Tom Agbor. Three opening speeches were made:

- An introductory statement from the Director of Research, Promotion and Innovation (DRVI) of IMPM by Dr. DIMODJI (Sub-Director of DRVI) ,
- A brief synopsis of the ‘Schistosomiasis day’ by Dr Justin Nono, Chair of the local organisation committee and
- An opening speech by Dr Tom Agbor, Deputy Director of IMPM.

Group picture, Interview and Coffee Break

Following the group photograph, organizers were interviewed by journalists from major news media agencies in the country. Those were TV, radio, online news outlets and newspapers (CRTV, Canal 2 International, Equinoxe Télévision, Cameroon Tribune, Guardian Post, Journal du Cameroun, Mutations and l’Economie; see Annex).



Group Picture.



Press interviews with local media.

Scientific presentations of the work done in Cameroon and discussions

Afterwards, the scientific work being carried out in Cameroon on schistosomiasis was presented. The 12 talks i.e. 3 plenaries and 9 short oral presentations were divided into 3 modules as per the attached program.

Module 1: Schistosomiasis at-a-glance

- This module covered the generalities on the disease, current disease prevalence, pathological consequences, and the current-control strategies in place in Cameroon (e.g. sanitation programs, drug distribution programs (where to get appropriate treatment), health education and hurdles in achieving control globally and locally).

Module 2: New Perspectives in host-schistosome interactions and disease management

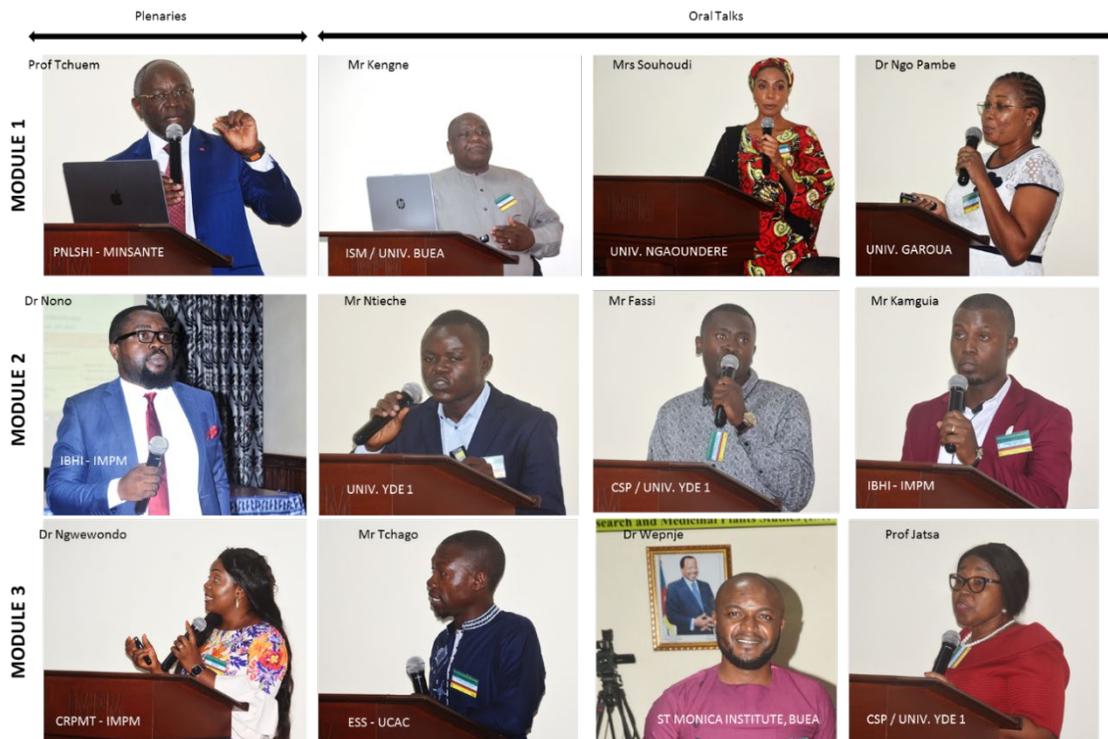
- This module covered state-of-the-art basic and clinical research aimed at identifying novel bases of transmission and pathology to inform better disease management (diagnostic, treatment, vaccines...)



1st SCHISTOSOMIASIS DAY 2023

Module 3: The pernicious genital burden of schistosomiasis

- This module covered the Female Genital Schistosomiasis (FGS) / Male Genital Schistosomiasis (MGS) landscape in Africa, possible clinical outcomes, and diagnostic. The evidence of pathogenic mechanisms, co-infections (HIV and HPV) and treatment efficacy studies highlighting the gaps in knowledge (scientific e social) was presented.



Speakers' pictures.



Q&A sessions during talks.

Questionnaires, suggestions and Travel Grants

Questionnaires

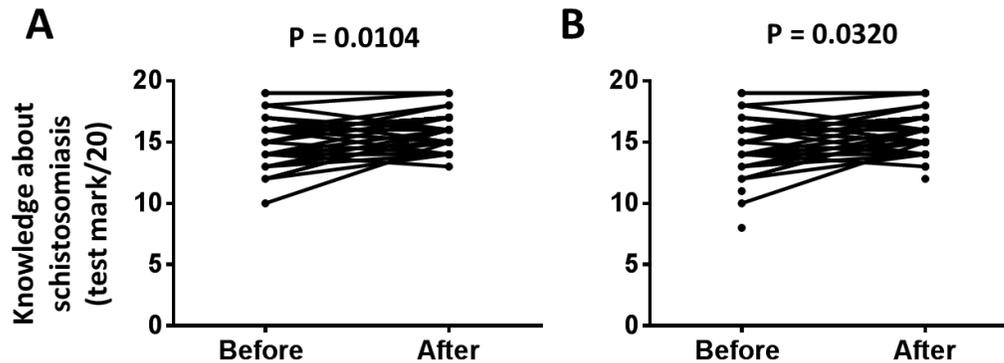
A questionnaire made of general questions on the disease knowledge, risk behavior and existing control/preventive measures and administered to all participants upon registration (questionnaire IN) and at the end of the day (Questionnaire OUT) to assess quantitatively the efficiency of the schisto day teachings in ameliorating the participants' knowledge of the disease and of possible control measures.

The participation to the questionnaire was as follows:

- Total number of participants that took any of the tests = 56
- Total number of participants that took the questionnaire test IN only but did not take the OUT = 12
- Total number of participants that did not take the Questionnaire IN but then took the questionnaire test OUT only = 9
- Number of participants that took both questionnaires (IN then OUT) = 35



The findings from their answers were computed automatically (right answers on general knowledge about schistosomiasis over a total point of 20) using Excel files generated from the google docs they completed. As shown below,



Attendance to the Schisto day significantly increases the participant knowledge about schistosomiasis. **A.** paired t-test comparison of the performance of all 35 participants that took the test both before and after the schisto day. **B.** Unpaired t test comparison of All participants that took the test before (n=44) and after (n=47) Schisto day.

Suggestions

Moreover, suggestion boxes requesting from willing participants to answer after the Schisto day ‘how *they do think we can solve the schistosomiasis problem in 3 points max*’ were unveiled revealing the following 5 anonymous answers:

- ‘Providing clean water for populations / finding drugs that target the parasite at all stages / National sensibilization and drug sharing’
- ‘Intensify MDA by including all age groups / Accelerate research to develop a vaccine / Develop new tools for diagnostics and pathology assessment’
- ‘Sensibilization in endemic areas / Preventive chemotherapy / Increase funding for the fight against schistosomiasis’
- ‘Increase awareness, especially community-based / Use new molecular-based techniques to diagnose’



- ‘Perform UpToDate mapping of schistosomiasis prevalence in the northern part of the country where Boko-haram-led conflicts have resulted in a lot of homeless (flooding fosters new foci and limit the reach of MDA programs) / Reinforce health personnel, teachers and community workers sensitization potential by increasing regional training seminars / Reinforce knowledge on prevention measures for local communities to foster dissemination in families and their circles / Foster collaborations between all relevant stake holders (ministry of basic education, ministry of public health etc...)’

These suggestions are all very valid suggestions and do attest of the quality of the level of awareness amongst our participants at the end of the day.

Travel Grants

All online registered participants were eligible for travel grants, based on their city of origin, clearly meant at fostering here the satisfaction of participation in such an event. A total of 38 travel grants were given out with 28 for participants from Yaoundé and 10 from other cities of Cameroon. Onsite registered participants were not given travel grants.

Awards and closing ceremony

At 17h00, to conclude on the daily proceedings, under the patronage of Pr.Essame Oyono, Director General of IMPM, final speeches and award proceedings were made. A word from IMPM directorate of Research, Promotion and Innovation was first made introducing Dr Nono, chair of the local organisation committee who summarized the day and read the list of all awardees that received accolades for their performances during the day, based on a rigorous evaluation of performance by a scientific committee composed of Dr Claudia Demarta-Gatsi (Merck KgaA, Switzerland), Dr Adela Ngwewondo (IMPM), Dr Justin Nono (IMPM), Dr Gabriel Agbor (IMPM) and Dr Rodrigue Nana (IMPM). Three oral presentations were awarded prizes for the best content and presentation skills i.e.:



- Bronze prize of 20,000 FCFA to M. KAMGUIA MEYO Elvis Leonel, from the Unit of Immunobiology and Helminth Infections for his work on cytokine profiling in children plasma during schistosomiasis to ameliorate diagnostic and monitoring. This prize was handed by the Chair of the Organizing committee, Dr Justin Nono
- Silver prize of 30,000 FCFA to Pr. JATSA BOUKENG Hermine, from the University of Yaoundé I, for her work on male genital schistosomiasis in Northern Cameroon, handed over by Pr. Louis Albert TCHUEM TCHUENTE, Coordinator of the national control Program and a
- Gold prize of 50,000 FCFA to Dr. WEPNJE BUNDA Godlove from Saint Monica University Higher Institute, for his work on Female Genital Schistosomiasis, handed over by Pr Jean Louis Essame Oyono, Director General of IMPM.

Furthermore, other certificates of Appreciation for contribution and great support during the organization and coordination of the first schistosomiasis day in Cameroon were also handed over by the Director General of IMPM to:

- Dr Adela Ngwewondo from the local organising committee and to
- Pr Louis Albert Tchuem Tchunte, coordinator of the National Control Program.



1st SCHISTOSOMIASIS DAY 2023



Bronze



Silver



Gold



Appeciation



Appreciation

Handing of best presentation awards and certificates of appreciation.



1st SCHISTOSOMIASIS DAY 2023



Final picture with all awardees, the local scientific committee and IMPM executives.

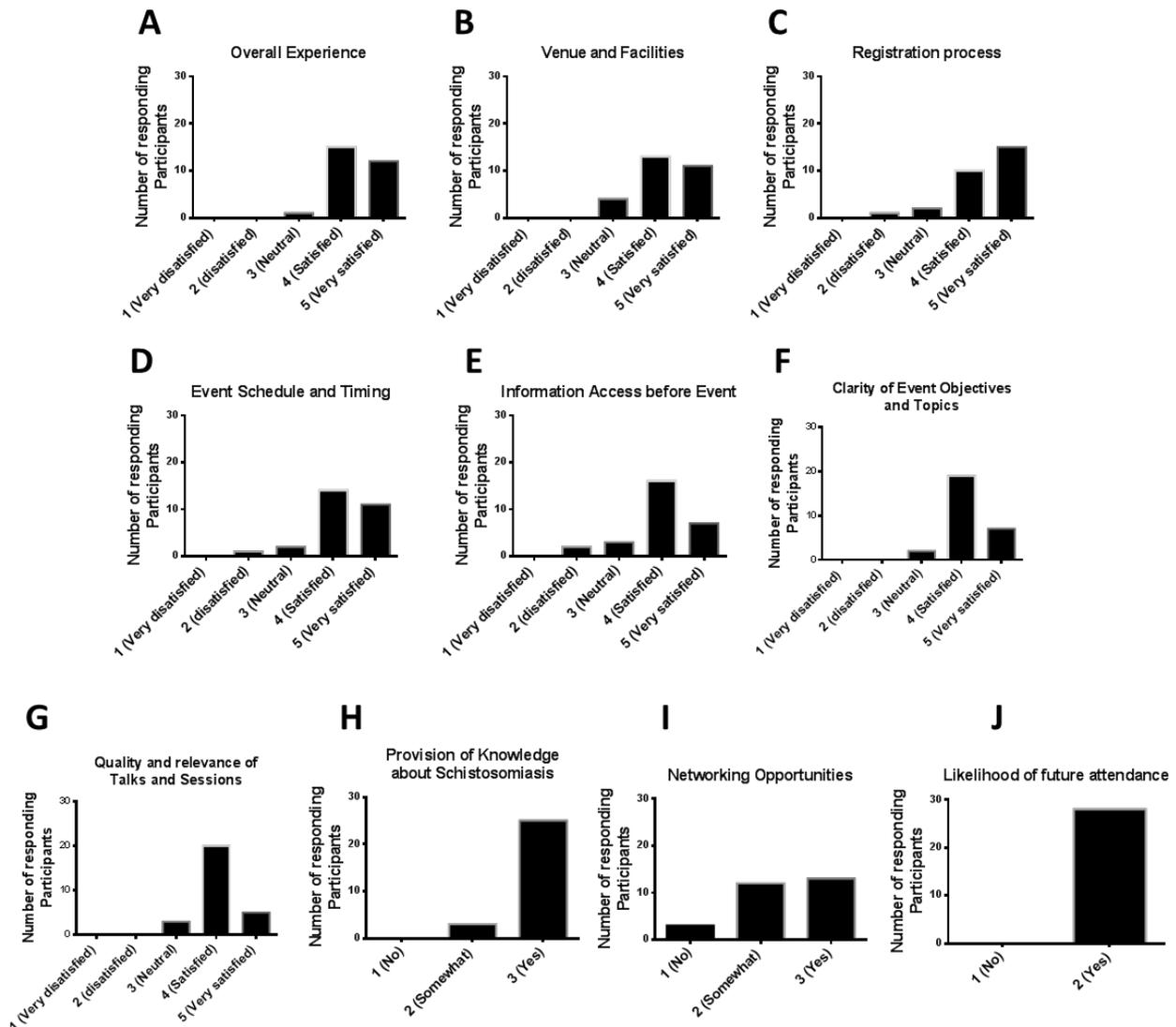
The day was concluded on a goodbye speech by the Director General of IMPM and the promise of annual *Schisto day* to become a tradition in endemic countries, emulating the first edition in Cameroon.



Post-meeting surveys and script development

Pros and cons

Participants were requested to provide by email their impressions on the first *Schisto day* and how to make it better for the next one. The following information were obtained from 28 respondents:



Post-event survey with 28 respondents among participants showing a high level of satisfaction on all aspects interrogated, and total likelihood of future participation, despite a mitigated view on the networking opportunities during the event.



Changes suggested for next Schisto day by participants:

Participants were also interrogated on what they might find useful to change / improve in next editions of the Schisto day. The following answers were gathered from 28 respondents and compiled into the **4 major points** below:

- 1- More sessions with wider scope of the schistosomiasis problem, more speakers, more experts thus more conference time (2 days, rather than 1 day only, were repeatedly suggested) to foster more participation, include poster sessions, and increase Q&A time and chances of networking with various speakers and among participants.
- 2- Presentations in speakers' first language – plan for the use of translators, if necessary
- 3- More mediatization and advertisement long in advance pre-event on news outlets, radios, tvs and websites
- 4- Increase travel grants to attract more distantly located participants and provide criteria for selection of awardees during registration already.



Annexes :

1- Book of abstracts



journee Schisto BOOK OF ABSTRACT_CDG_JK1.pdf

2- Some newspaper articles on the event

1. Cameroon Tribune

Maladies tropicales négligées
Pleins feux sur la schistosomiase

Hier, l'Institut de recherches médicales et d'études de plantes médicinales a organisé une série d'activités pour sensibiliser et toucher les communautés à risque.

Alexandra TCHUILEU N.



Le combat de l'éradication avec les chercheurs.

La schistosomiase n'existe pas seulement dans les livres de sciences des lycées et collèges. Encore appelée bilharziose, cette maladie tropicale négligée est considérée comme la deuxième maladie parasitaire la plus dévastatrice après le paludisme. Prétexte suffisant pour marquer un arrêt. A l'occasion de la première édition de la journée dédiée, l'Institut de recherches médicales et d'études de plantes médicinales (IMP) souhaite faire connaître les efforts scientifiques déployés pour lutter contre cette maladie et sensibiliser les différentes communautés. A cet effet, plusieurs chercheurs se sont retrouvés hier à Yaoundé pour discuter des avancées de la recherche, au cours d'une cérémonie ouverte par le Dr Tom Agbor Egbe, Directeur général adjoint de l'IMP.

Selon le Dr Justin Nono, organisateur de l'événement, les communautés ne semblent pas prendre à bras le corps ce problème. Avec ces chercheurs des universités, « nous espérons avoir un effet d'engrenage pour limiter les transmissions sur la base des changements de comportements », dit-il. La schistosomiase est subtile. « Les effets les plus patents de cette maladie sont par exemple une distension abdominale, une anémie, la présence de sang dans les urines. Cette maladie pourrait résulter à une défaillance de plusieurs organes et la mort », prévient le Dr Justin Nono. Entre autres conséquences pour la personne atteinte, son incapacitation, ainsi que la réduction de son aptitude à lutter contre d'autres maladies. Pourtant, le traitement est accessible. « Le praziquantel distribué annuellement par le Programme national de lutte contre la schistosomiase permet à tous les enfants en âge scolaire d'y avoir accès. Une seule dose permet d'éradiquer de façon temporaire le parasite », explique le Dr Justin Nono. En effet, ce traitement ne prévient pas la réinfection.

Sur l'état de la maladie, le Pr. Louis-Albert Tchuem Tchuente, secrétaire permanent du Programme national de lutte contre la schistosomiase et les helminthiases intestinales au ministère de la Santé publique (Minsante), relève que « la schistosomiase touche près de deux millions de personnes au Cameroun, avec plus de cinq millions de personnes à risque d'infection. On a eu une baisse significative de la prévalence de la maladie entre 1985 et 2019 de près de 70% de la prévalence totale. » Il annonce aussi que le Minsante a lancé le mois dernier une feuille de route 2021-2030 pour l'élimination de cette maladie. Aujourd'hui, les communautés à risque sont celles en contact avec les points d'eau dans lesquels se trouvent les mollusques qui transmettent cette maladie. Ainsi, les activités liées à la pêche, les laves de voitures ou les personnes n'ayant pas accès au système de latrines modernes sont exposés ».



2. L' Economie

L'ÉCONOMIE - n° 02811
VENDREDI 28 JUILLET 2023

BUSINESS | 9

SANTÉ

Comment la schistosomiase plombe le développement des communautés

L'impact de cette maladie a été présenté le 26 juillet 2023 à Yaoundé.

L'Institut de recherches médicales et d'études de plantes médicinales a organisé le 26 juillet 2023 à Yaoundé avec le soutien de Wellcome Center for integrative parasitology (WCIP) la première journée de la schistosomiase. L'objectif de cet événement était non seulement de présenter les efforts scientifiques déployés pour lutter contre cette maladie mais aussi d'impliquer les jeunes et les étudiants dans la lutte. « La schistosomiase touche près de 2 millions de personnes au Cameroun avec plus de 5 millions de personnes à risque d'infection. Au cours des années, le ministère de la Santé publique a réalisé d'importants progrès et on a eu une baisse significative de cette maladie entre 1985 et 2019 de près de 70% de la prévalence totale » a expliqué le Pr. Louis Albert Tchuenté, Secrétaire permanent du Programme national de lutte contre la schistosomiase et helminthiases intestinales au Ministère de la Santé publique. Maladie tropicale négligée que

l'on trouve dans les zones rurales et semi-urbaines du Cameroun, la schistosomiase a un impact négatif sur le développement des communautés. « Par exemple, un agriculteur malade pendant quelques semaines subit une perte considérable lorsque ses récoltes sont gâchées et que sa famille à faim. De plus, un enfant atteint d'anémie causée par la schistosomiase intestinale ne fréquentera pas l'école régulièrement, ce qui aura un impact sur son éducation et le développement ultérieur de la communauté. Cela arrive aux familles du monde entier dans les régions tropicales, causant une misère indicible et entravant la croissance » souligne les organisateurs de la première journée de la schistosomiase. « Nous voulons aider à éduquer les populations à risque du Cameroun sur la propagation de la maladie, la gestion actuelle de la maladie et les options de traitement pour réduire la transmission » souligne le Dr. Justin Nono, organisateur de la journée. Le Pr. Jean Louis Essame Oyono, directeur de l'IMPMP a encouragé cette initiative. « Quand on est au Nord du Cameroun, on se rend compte que la schistosomiase est un réel problème de



Nous voulons aider à éduquer les populations à risque du Cameroun sur la propagation de la maladie.

santé publique » a-t-il déclaré. « Cet événement renforce les liens déjà solides entre le WCIP » et l'IMPMP avec le potentiel de futures initiatives de recherche conjointes sur de nouveaux diagnostics, thérapies et stratégies de contrôle contre les maladies parasitaires dévastatrices » souligne le Wellcome Center for integrative parasitology (WCIP). Situé à l'université de Glasgow en Ecosse, ce centre se concentre sur l'étude et la compréhension de la biologie des infections parasitaires.

Hervé Fopa Fogang



3. Mutations

SANTÉ / ENVIRONNEMENT 3

Schistosomiase

Plus de 2 millions de personnes infectées au Cameroun

Lors de la journée dédiée à la lutte contre cette maladie, les experts ont indiqué que plus de 5 millions de personnes sont à risque d'infection.

Par Saydou Sadjo

Ayant pour objectif de faire connaître les efforts scientifiques déployés pour lutter contre la schistosomiase au Cameroun et d'impliquer les jeunes et les étudiants dans la lutte contre cette maladie, une journée scientifique est organisée à l'Impm de Yaoundé. Elle réunit des experts dans le domaine de la schistosomiase au Cameroun avec pour but de partager leurs connaissances et discuter des solutions pour aborder la recherche sur la schistosomiase et celle génitale, comme facteur de risque de cancer (vessie, colorectal, foie, etc.), le Vih, et le développement socioéconomique.

De plus, cette rencontre a permis de discuter des limites actuelles des stratégies de lutte contre la schistosomiase et des différents moyens qui pourraient être mis en place pour accroître la recherche et les collaborations inter-laboratoires au Cameroun. «La schistosomiase est une maladie tropicale négligée présente dans les zones rurales et semi-urbaines du Cameroun, avec près de cinq millions de Camerounais à risque dans tout le pays. Il s'agit de la deuxième maladie parasitaire la plus dévastatrice après le paludisme, et ses éventuels effets indésirables sont inconnus de la population endémique. Cette maladie affecte de nombreuses personnes dans les pays à revenu limité, en particulier les jeunes, les pauvres et les populations vulnérables.», indique Dr Justin Nono, organisateur de l'évènement.

Au cours des années, le ministère de la santé publique à travers le point focal de lutte contre la schistosomiase a réalisé des travaux dans le but de mettre les populations hors d'état de nuire. « Nous avons eu une baisse de la prévalence de cette maladie entre 1985 et 2018, près de 70 % de la prévalence totale. Sur la base de cette importante réalisation, le ministère de la santé publique a lancé l'an dernier une feuille de route



Un atelier pour renforcer la lutte contre la schistosomiase.

2021/2030 pour l'élimination de cette maladie au Cameroun. Il s'agit d'un très ambitieux projet. Voilà pourquoi nous devons accentuer les collaborations avec les équipes de recherche », affirme Louis Albert Tchuenté, ambassadeur des maladies tropicales négligées.

Il est important de souligner que la schistosomiase au niveau de ses caractéristiques est extrêmement subtile. Il faut des années si non des décennies pour avoir une symptomatologie clinique apparente. Les effets les plus patent de cette maladie sont une distension abdominale et éventuellement une anémie, il y a aussi la présence du sang dans les urines à en croire

le Dr Justin Nono. Mais s'il n'y a pas un traitement, cette maladie peut conduire à des défaillances des organes et la mort. Les implications de cette maladie est multiple notamment elle favorise la transmission du Vih/Sida.

Les communautés concernées sont des localités qui sont en contact avec les points d'eaux dans lesquels se trouvent les mollusques qui transmettent cette maladie. Dans les rivières par exemple, la présence des mollusques et des escargots sont déterminants de la transmission de la maladie. Les pêcheurs, les laveurs de voitures et ceux qui sont en contact permanent avec ces eaux sont les plus touchés.



4. Guardian Post

The Guardian Post No 2855

SOCIETY/COLUMN

Friday July 28, 2023

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Initiatives to address prevailing schistosomiasis, associated diseases



Officials, participants in group photo

us towards the elimination of the disease," Prof Tchuem said.

The Ministry of Public Health is said to be implementing a 2021-2023 roadmap for the elimination of the schistosomiasis in the country with significant progress said to have been made to reduce the disease prevalence.

"So far we have been talking about the disease control but now we are talking about elimination. This means interruption of this disease," the National Coordinator said.

He emphasised that for the ambitious plan to be realised, the collaboration of all partners involve in the fight against the disease is required.

What schistosomiasis is about?

lected tropical disease that is commonly found in rural and semi-urban areas, with nearly five million Cameroonians at risk across the country.

With schistosomiasis being the second most devastating parasitic disease after malaria, Dr Nono said its possible adverse effects are usually unknown to the endemic population.

"It appears to be a subtle disease as its transmission is hardly noticed until it is far advanced and in the chronic stage for it to manifest its signs and symptoms.

We are here to tell the people what the best ways to prevent the disease transmission, the signs whenever they come, include anemia, presence of blood in urine and other signs," he said.

"This disease affects many people in low-income countries, especially young,

losses with reduced work capacity," Dr Nono mentioned.

He further explained that: "We intend to help educate at-risk populations in Cameroon about the spread of the disease, current disease management, and treatment options to reduce transmission of schistosomiasis".

The event, which was also attended by young researchers and students, was geared towards raising awareness on the scientific efforts made to fight against schistosomiasis in Cameroon and to involve them in the fight against the disease.

It was marked by a series of presentations related to strategies to improve schistosomiasis surveillance, prevention across different settings as well as the importance of social science in the fight