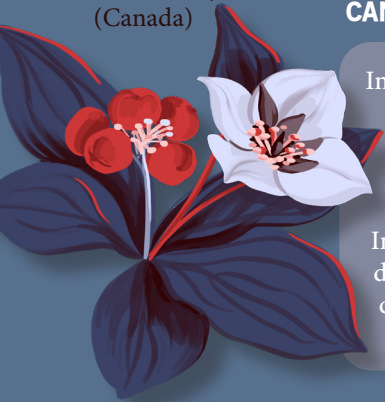


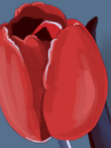
Bunchberry
(Canada)



Native BioData Consortium CANADA/NORTH AMERICA | October 2021

In reflecting on reconciliation with the history of Indigenous Peoples in Canada, genomic justice to empower and reclaim genetic data decisions within Indigenous communities is an emerging priority according to Dr. Nadine Caron. Dr. Caron is the co-director of the Centre for Excellence in Indigenous Health at UBC, leader of the Silent Genomes Project, and the first female Indigenous surgeon.¹ The creation of the Native BioData Consortium, Silent Genomes Project, and associated projects empowers Indigenous genetic research serving Indigenous genetic research priorities.² Over the next few years, the digital genome market is expected to grow significantly, opening opportunities to increase Indigenous data ownership and reclamation. As a result, the consortium seeks to not only reclaim Indigenous biological samples, but also the economic opportunity invested in genetic data banks.

Tulip
(Afghanistan)

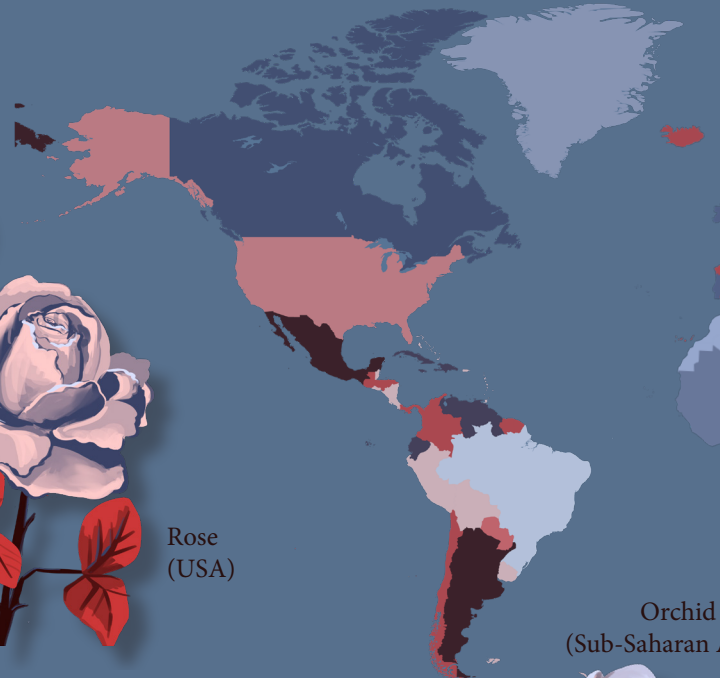


Picky Eating In College Students USA | October 2021

Picky eating (PE), or selectively eating a narrow range of foods, is a common phenomenon among children but can also persist into adulthood.^{3,4} A recent study surveyed American undergraduate students to determine the effects of PE in college students. About 65% of the picky eaters identified in the survey reported eating fewer than 10 foods.⁴ Picky eaters further reported less fibre and vegetable intake than non-picky eaters, higher levels of social phobia and situational distress, and lower quality of life.⁴ As many young adults start making their own food decisions in college, understanding the behaviours associated with PE in college can help inform intervention strategies at a pivotal time.



Rose
(USA)



Can Air Pollution Affect Test Performance? BRAZIL | October 2021

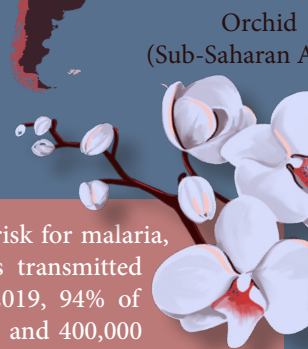
Most of the effects of air pollution on human health are associated with exposure to particulate matter (PM): extremely small airborne particles containing chemicals, metals, dust, and soil.⁵ While the effects of PM on the respiratory and cardiovascular systems are well-known, its impacts on cognitive performance are less characterized.⁶ A new study from Brazil examined correlations between PM levels and university entrance exams, and reported that an increase of 10 $\mu\text{g}/\text{m}^3$ in PM on the day of the examination decreased students' scores by 6.1 points.⁶ The data also suggests that PM levels adversely affected male students and students from poorer households to a greater degree.⁶ While decreased cognitive performance would not lead to hospitalization, it can reduce productivity at work. This effect creates a cycle of disadvantage as it hits the poorest people of poor countries the hardest — those who need development prospects the most.⁶



Ipê-amarelo
(Brazil)

First Malaria Vaccine Endorsed by WHO SUB-SAHARAN AFRICA | October 2021

Around half of the world's population is at risk for malaria, an illness caused by Plasmodium parasites transmitted from infected mosquitos to humans.⁷ In 2019, 94% of the approximately 229 million malaria cases and 400,000 deaths occurred in Africa.⁷ On October 6, 2021, the World Health Organization (WHO) made history by recommending the first malaria vaccine.⁸ RTS,S/AS01, or Mosquirix, was created in 1987 and targets the circumsporozoite protein on the surface of Plasmodium.⁹ The recommendation came after a pilot program in Ghana, Kenya, and Malawi showed Mosquirix to be safe, feasible, and cost-effective.⁸ However, among children aged 5-17 months, the vaccine efficacy is 36% after four doses, falling short of current targets of 75% protection.^{10,11} Nonetheless, Mosquirix has the potential to save tens of thousands of lives in Africa, and offers a "glimmer of hope for the continent" in the fight against malaria.⁸

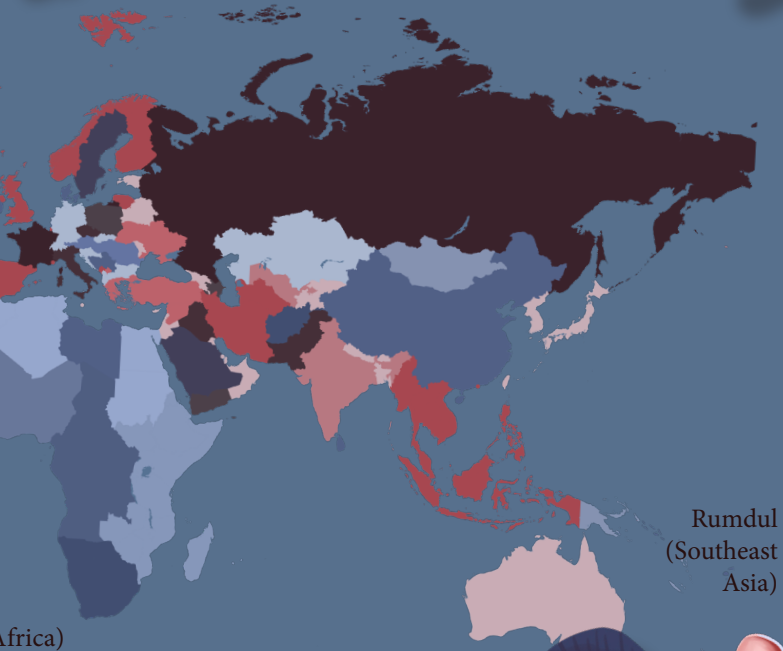
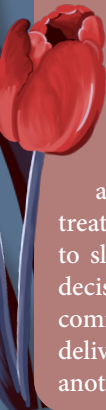


Orchid
(Sub-Saharan Africa)

Mental Health Endemic in Afghanistan AFGHANISTAN | October 2021

Amidst the violence and sociopolitical changes in Afghanistan over the past few months, the mental health crisis haunts the nation as a silent, unending disease.

Following years of conflict, upheaval and trauma, nearly 1 in 2 Afghans suffer from psychological distress, yet only 3% of individuals seeking health services are appropriately offered mental health support.¹² This dramatic inequity arises from the lack of funding to support mental health services and professionals, as well as a social taboo stigmatizing treatments for youth and women.¹³ As this crisis continues to slowly fracture the bruised Afghan healthcare system, decisive and immediate responses from the international community should work pragmatically to intervene in the delivery of mental health services before arriving at yet another endemic.



Rumdul
(Southeast Asia)

(Africa)



Anti-Seizure Cannabinoids AUSTRALIA | October 2021

Phytocannabinoids, such as Δ^9 -tetrahydrocannabinol and cannabidiol (CBD), have been used extensively in clinical treatments against epilepsy. Specifically, CBD has demonstrated efficacy for treating Dravet syndrome — a rare, drug-resistant form of epilepsy developed in infancy.¹⁹ A recent study from the University of Sydney highlighted three novel cannabinoid molecules that displayed efficacy in treating hyperthermia-induced and electric-shock induced seizures. These three molecules are Cannabigerolic Acid (CBGA), Cannabidivarinic Acid (CBDVA) and Cannabigerovarinic Acid (CBGVA).²⁰ Notably, since the heating process often decarboxylates the acidic compounds into neutral compounds, all three phytocannabinoids are found only in raw cannabis and not in commercial products. In particular, CBGA demonstrates the most potent anticonvulsant effect through potentiating clobazam during hyperthermia-induced and spontaneous seizures, in addition to MES threshold tests. Nevertheless, CBGA as a monotherapy has proconvulsant effects on spontaneous seizures and receptor destabilization to GABA_A receptors, which demonstrates the divergent nature of these phytocannabinoids.



Golden Wattle
(Australia)

Rapid Heart Attack Sensor FRANCE | September 2021

Researchers from the University of Notre Dame and University of Florida have developed a new platform for the rapid detection of acute myocardial infarctions (AMI), commonly known as heart attacks.¹⁴ The sensor uses a multiplexed ion-exchange membrane platform to detect microRNAs (miRNAs) as biomarkers of AMI.¹⁵ miRNAs are small non-coding RNAs that post-transcriptionally regulate gene expression.¹⁵ Since miRNA has a high turnover rate, it can be detected earlier and with lower error than the protein-based gold standards.¹⁵ The platform does not require any sample preparation; measurements can be made within minutes of sampling and readout occurs in under half an hour.¹⁵ This innovation thus provides a low-cost, portable tool that can speed up diagnosis of one of the leading causes of death worldwide.¹⁶



Fleur-de-lis
(France)

Zoonotic Canine and Feline Vectors for Tropical Diseases SOUTHEAST ASIA | 2021

Emerging during the COVID-19 pandemic, research on zoonotic viruses remains a critical focus, especially in regions of Southeast Asia (SEA) where limited financial and laboratory resources hinder research efforts. In particular, infectious parasites such as *Bartonella henselae*, *Rickettsia felis* and *Dirofilaria repens* exemplify canine and feline zoonotic vector-borne diseases.¹⁷ Among neglected tropical diseases in SEA, conditions such as lymphatic filariasis (elephantiasis) endemically affects nearly 15 million people due to infection from pathogens such as *Wuchereria bancrofti*. With up to 60% prevalence in felines, *B. henselae* is reported to cause cat scratch disease and endocarditis in humans, whereas *R. felis* has been attributed to nonspecific febrile illnesses across SEA.

In contrast, *D. repens* is mosquito-borne and results in heartworm and subcutaneous complications.¹⁸ Due to the lack of resources in SEA, many details about the zoonotic nature of these infectious parasites and their alternative vectors remain unknown. For instance, not much is known about the specific mosquito species and the mechanisms of zoonotic transmission that are responsible for *D. repens* infection. As a result, greater communication and collaboration between regional, medical, and veterinary groups is required to strengthen knowledge and prevention of further zoonotic transmissions or potential disease epidemics.