
DETOXYFI

Access To Clean Drinking Water

Should Be A Basic Human Right

Access | Trust | Equity

Our technology has been developed at MIT over 10+ years of research

Step 1 | Step 2 | Result

Performance classification	Log_{10} reduction required			Interpretation (with correct & consistent use)
	Bacteria	Virus	Protozoa	
★★★	≥4	≥5	≥4	Comprehensive protection
★★	≥2	≥3	≥2	
★	Meets at least 2-star criteria for two classes of pathogens			Targeted protection
-	Fails to meet WHO performance criteria			Little or no protection

Waste Wood Processing

- Vertically integrated with Winwood Sawmill in Massachusetts

Chemical Treatment

- Design and prototyping partner (RPM Tech) transforms filters to maximize filtration and flow rate

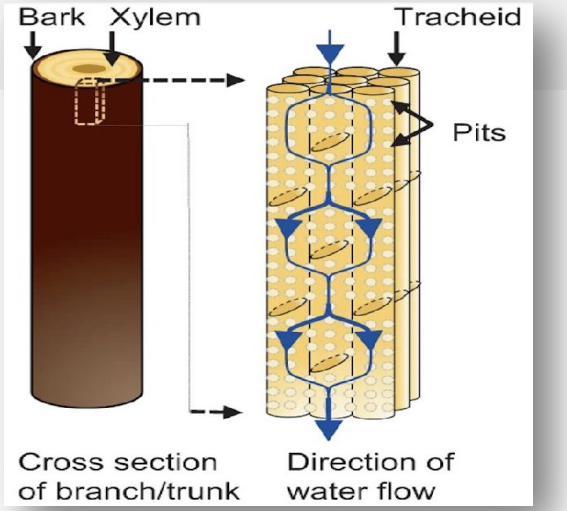
3rd party verified

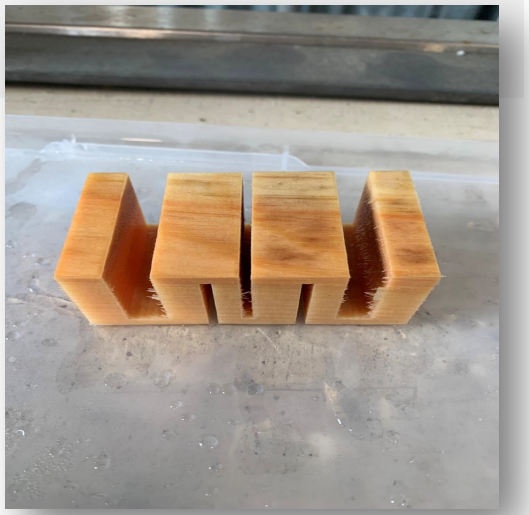
- WHO quality filtration against disease causing microbes

DetoXyFi

Our patented, one-of-a-kind water filtration technology inspired by nature.

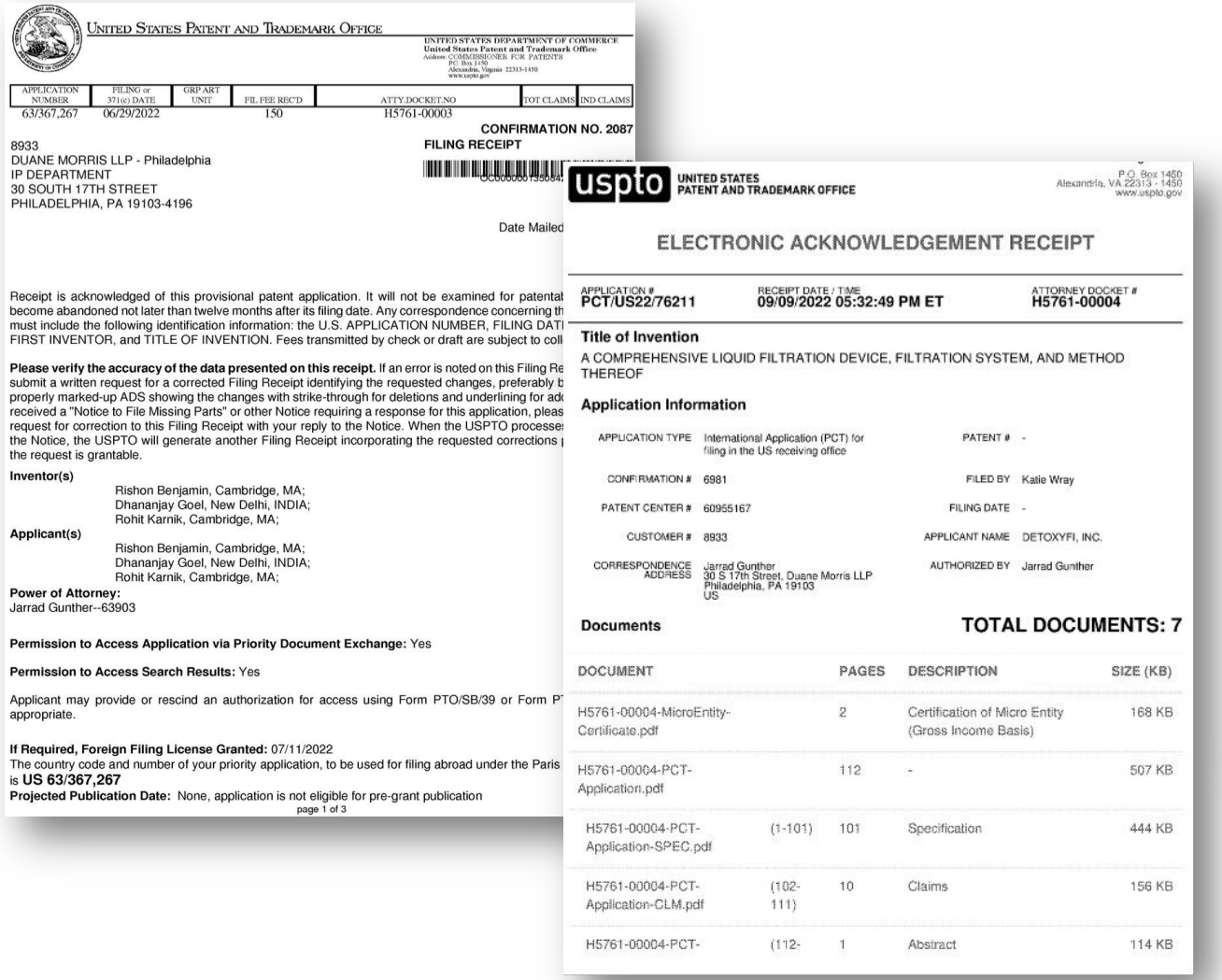
- 10 years of lab and field testing in India, Uganda, Madagascar, and the US with high social acceptance*
- Human-centered design
- **60% cheaper, up to 10x more effective than alternative methods**





*Research work published on Nature Communications in 2021

Our devices are patent-pending and field tested across 5 countries



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
63/367,267	06/29/2022		150	H5761-00003		

CONFIRMATION NO. 2087

FILING RECEIPT

8933
DUANE MORRIS LLP - Philadelphia
IP DEPARTMENT
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103-4196

Date Mailed

Receipt is acknowledged of this provisional patent application. It will not be examined for patentat become abandoned not later than twelve months after its filing date. Any correspondence concerning th must include the following identification information: the U.S. APPLICATION NUMBER, FILING DAT FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to coll

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Permission to Access Application via Priority Document Exchange: Yes

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Projected Publication Date: None, application is not eligible for pre-grant publication

page 1 of 3

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
PCT/US22/76211	09/09/2022 05:32:49 PM ET	H5761-00004

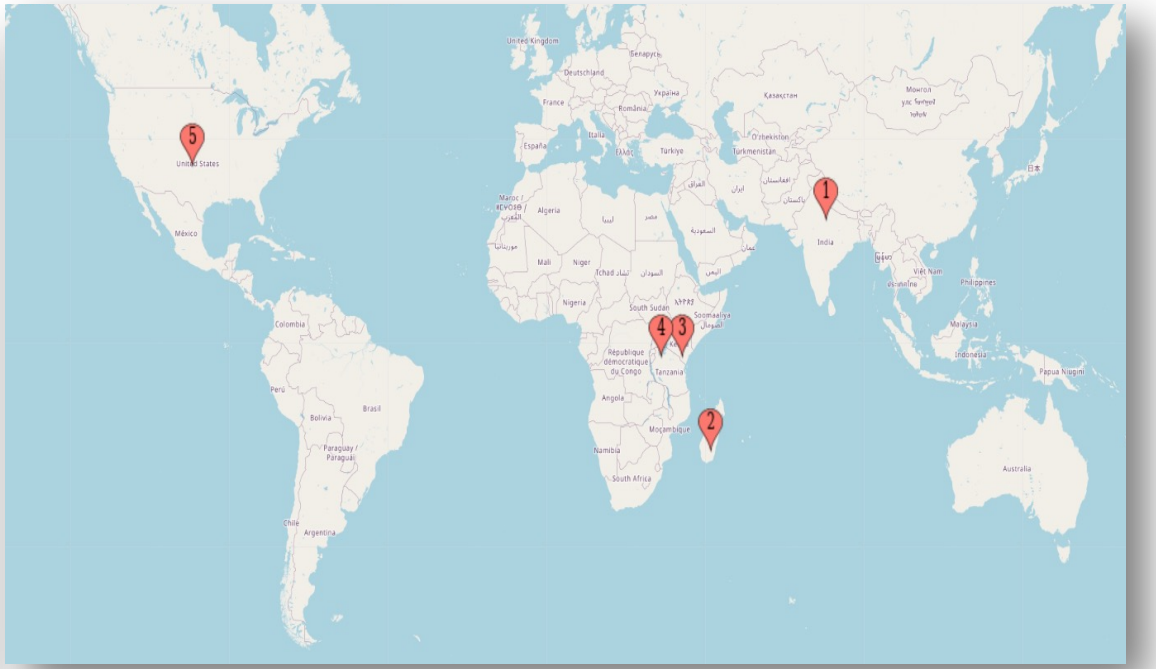
Title of Invention
A COMPREHENSIVE LIQUID FILTRATION DEVICE, FILTRATION SYSTEM, AND METHOD THEREOF

Application Information

APPLICATION TYPE	International Application (PCT) for filing in the US receiving office	PATENT #	-
CONFIRMATION #	6981	FILED BY	Katie Wray
PATENT CENTER #	60955167	FILING DATE	-
CUSTOMER #	8933	APPLICANT NAME	DETOXYFI, INC.
CORRESPONDENCE ADDRESS	Jarrad Gunther 30 S 17th Street, Duane Morris LLP Philadelphia, PA 19103 US	AUTHORIZED BY	Jarrad Gunther

Documents **TOTAL DOCUMENTS: 7**

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
H5761-00004-MicroEntity-Certificate.pdf		2	Certification of Micro Entity (Gross Income Basis)	168 KB
H5761-00004-PCT-Application.pdf		112	-	507 KB
H5761-00004-PCT-Application-SPEC.pdf	(1-101)	101	Specification	444 KB
H5761-00004-PCT-Application-CLM.pdf	(102-111)	10	Claims	156 KB
H5761-00004-PCT-	(112-	1	Abstract	114 KB



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Article | Open Access | Published: 25 March 2021

Engineering and characterization of gymnosperm sapwood toward enabling the design of water filtration devices

Krithika Ramchander ✉, Megha Hegde, Anish Paul Antony, Luda Wang, Kendra Leith, Amy Smith & Rohit Karnik ✉

Nature Communications **12**, Article number: 1871 (2021) | Cite this article

9058 Accesses | **10** Citations | **175** Altmetric | Metrics

Abstract

Naturally-occurring membranes in the xylem tissue of gymnosperm sapwood enable its use as an abundantly-available material to construct filters, with potential to facilitate access to safe drinking water in resource-constrained settings. However, the material's behavior as a filter is poorly understood, and challenges such as short shelf life have not been addressed. Here, we characterize the operational attributes of xylem filters and show that the material exhibits a highly non-linear dependence of flow resistance on thickness upon drying, and a tendency for self-blocking. We develop guidelines for the design and fabrication of xylem

FOUNTAIN VALLEY ANALYTICAL LABORATORY, INC.

1413 Old Taneytown Rd. Westminster, MD (410) 848-1014 (410) 876-4554

REPORT OF ANALYSIS

Laboratory ID #:	155164	Account #:	7769
Reference:	Bacteria Rejection Testing	Client:	DetoXyFi
Location:	12 E Jarrettsville Road	Requested By:	Rishon Benjamin
	Forest Hill, MD 21050	Source:	E. Coli Standard
Date/ Time Collected:	10/11/2022 1248	Site:	Post-Test Negative
Date/Time Rec'd:	10/11/2022 1526	Treatment:	N/A
Chlorine ppm:	Free: ND Total: ND	pH:	NT
Collected By:	S. Zakielarz	Well #:	N/A

PARAMETERS	RESULTS	UNITS	REFERENCE	METHOD	DATE/TIME/ANALYST
Bacteria, E. coli, MPN	<1.0	MPN/ 100 ml	<1.0	SM20 9223B	10/12/2022 / 1200 / CRS

NOTES:

1. MPN/ 100 ml = Most Probable Number [of viable bacteria] per 100 ml of sample.
2. Results less than or within the reference range are considered satisfactory and within potable water limits at the time of sampling.
3. ND = None Detected; N/A: Not Applicable; NT = Not Tested
4. Sample collected by client, analyzed as received
5. Chlorine level tested in lab

Reason for Test : Client's Information

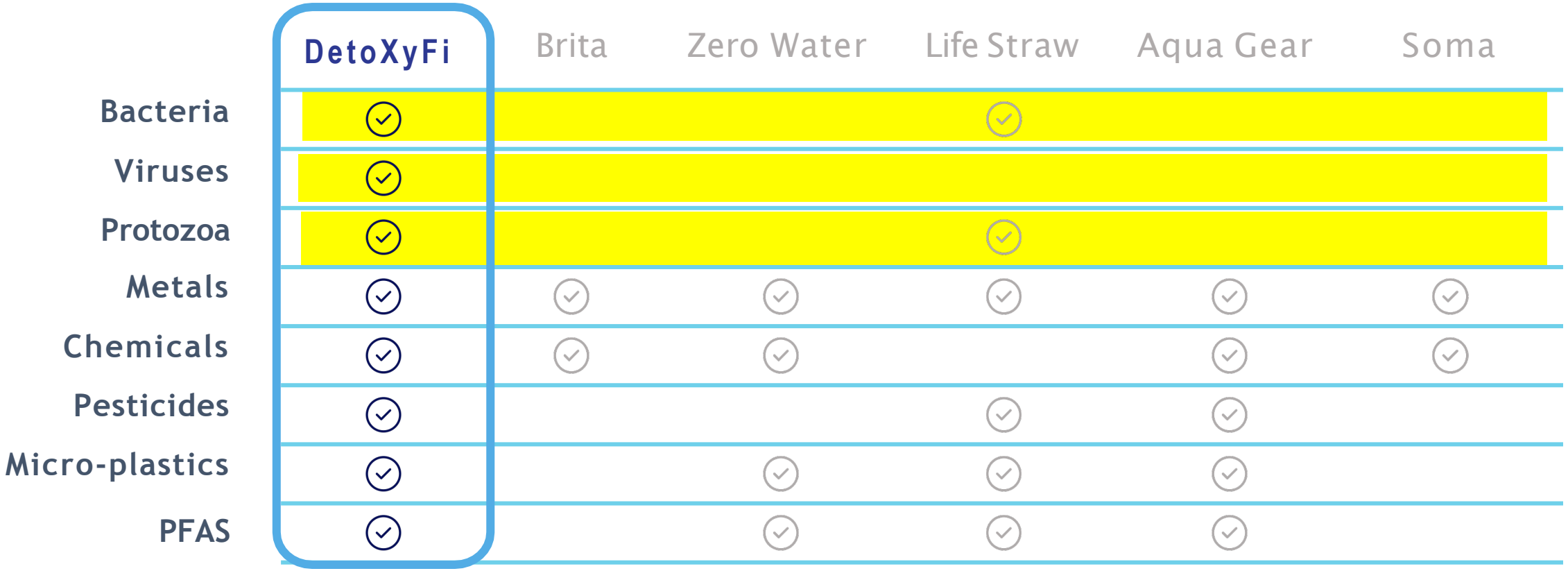
FILTERS BUILT USING WASTE WOOD

PRODUCT FOR INFORMAL SETTLEMENTS

DISASTER RELIEF / OUTDOOR

Why DetoXyFi?

Shielding household water from chemical AND biological disease–causing agents



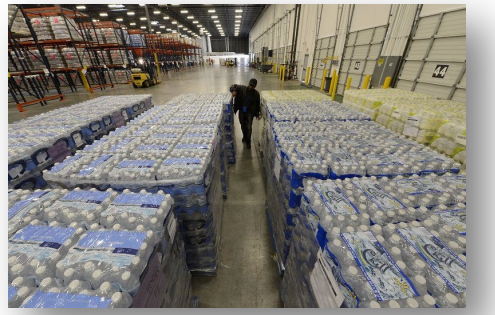
Why DetoXyFi?

Replacing current non eco-friendly, expensive, inaccessible alternatives

Bottled Water

Expensive to ship
Occupy high volume
Plastic waste

DetoXyFi filters are light-weight, scalable, and biodegradable



Boiling Water

Requires external fuel
High carbon footprint

DetoXyFi filters without any fuel inputs and uses 30x less wood

Chlorine tablets

Does not remove turbidity
Leaves foul taste
Harmful carcinogenic byproducts

DetoXyFi filters provide clean tasting water without any byproducts

Pump filters (e.g Sawyer)

Expensive to provide at scale ($30)

DetoXyFi filters can be provided globally for <$5

Our Vision: DetoXyFi for our collective futures

Leveraging the wood-based filter technology as a platform to scale

B2B

- **DetoX1**
- Disaster Relief & Urban Slums
- Weekly Use

B2B2C

- **DetoX2**
- Post Disaster Relief & Informal Settlements
- 2 week life span
- Contaminant specific filters

D2C

- **DetoX3**
- Extended retail use
- 3-4 week life span

D2C

- **DetoX4**
- Extended retail use
- 4 week life span

Team

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Supporters: