

EFFICIENCY OF WATER PURIFIER

STUDY DONE BY
EQUINOX LABS PVT. LTD.

STUDY DONE FOR
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Report Number	EQNX:001:LAB:O:23:03:20151 – 20154
Sample Description	Eco Pro & Eco Pro Compact
Analysis Date	23/03/2023 – 05/04/2023
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EFFICIENCY OF WATER PURIFIER Eco Pro & Eco Pro Compact

1. Scope

- To find out the efficiency of water purifier (Eco Pro & Eco Pro Compact) against Chemical contaminants, Pesticides, Heavy Metals & Microorganisms

2. Parameters to be tested

2.1 Physico Chemical parameters

- Turbidity
- Color
- Total Dissolved Solids
- Chloride
- Total Hardness
- Calcium
- Fluoride
- Nitrate
- Nitrite
- Sulphate
- Chlorine

2.2 Pesticides as per IS 10500:2012

2.3 Heavy Metals as per IS 10500:2012

2.4 Microorganisms

- Total Bacterial Count
- *Coliforms*
- *E Coli/ Fecal Coliforms*
- *Clostridium perfringens*
- *Enterococcus faecalis*

3. Method of Analysis

3.1 Preparation of feed sample – The Feed Sample is Prepared as per below composition.

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Parameters	
Physico Chemical Parameters	
Turbidity NTU	5
Color CU	5
Total Dissolved Solids	400
Chloride	100
Chemical Parameter - mg/l	
Total Hardness	200
Calcium	80
Fluoride	0.5
Nitrate	5
Nitrite	0.01
Sulphate	100
Chlorine	1
Pesticides - mg/l	
2,4 D	0.03
Alachlor	0.03
Aldrin	0.03
Alpha HCH	0.03
Atrazine	0.03
Beta Endosulphan	0.03
Beta HCH	0.03
Butachlor	0.03
Chlorpyrifos	0.03
Delta HCH	0.03
DeltaHCH	0.03
Dieldrin	0.03
Endosulfan alpha	0.03
Endosulphan Sulphate	0.03
Endrin	0.03
Ethion	0.03
Heptachlor	0.03
Heptachlor epoxide	0.03
Lindane	0.03
Malathion	0.03
Monocrotophos	0.03
O P- DDD	0.03
O P- DDE	0.03
O P- DDT	0.03
P,P- DDD	0.03
P,P- DDE	0.03
Paraoxon-methyl	0.03
Parathion ethyl	0.03
Parathion-methyl R	0.03
Phorate	0.03
Phorate sulfoxide	0.03
pp DDT	0.03

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Heavy Metals – mg/l	
Aluminum	0.010
Arsenic	0.01
Barium	0.010
Cadmium	0.010
Copper	0.010
Iron	0.100
Manganese	0.010
Mercury	0.005
Sodium	1.000
Nickel	0.010
Lead	0.010
Antimony	0.005
Selenium	0.010
Zinc	0.010
Microorganisms CFU/ml	
Total Bacteria	10 ³
Coliform	10 ³
E Coli	10 ³
Faecal coliform	10 ³
Clostridium	10 ³
Enterococcus	10 ³

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4. Observations & Results:

4.1 Spike sample is passed through the Eco Pro & Eco Pro Compact water purifier and Results are as below -

Table – 1 - Physico - Chemical parameters

Parameters	Unit	Spiked sample conc.	Eco Pro	% Reduction	Eco pro Compact	% Reduction
Turbidity	NTU	5.9	4.8	18.6	2.7	54.2
Color	CU	4.8	4.2	12.5	3.9	18.8
Total Dissolved Solids	mg/l	340	320	5.9	325	4.4
Chloride	mg/l	73.5	40.5	44.9	56	23.8
Total Hardness	mg/l	190	174	8.4	178	6.3
Calcium	mg/l	75	64	14.7	61	18.7
Fluoride	mg/l	0.49	0.38	22.4	0.41	16.3
Nitrate	mg/l	5	< 1.0	100	< 1.0	100.0
Nitrite	mg/l	0.009	0.004	55.6	0.0049	45.6
Sulphate	mg/l	97.1	64	34.1	70	27.9
Chlorine	mg/l	1	0.2	80.0	0.4	60.0

Table – 2 – Heavy Metals

Parameters	Unit	Spiked sample conc.	Eco Pro	% Reduction	Eco pro Compact	% Reduction
Aluminum	mg/l	0.011	< 0.001	100	< 0.001	100
Arsenic	mg/l	0.012	0.001	91.7	0.002	83.3
Barium	mg/l	0.010	< 0.001	100	0.006	40
Cadmium	mg/l	0.008	0.001	87.5	< 0.001	100
Copper	mg/l	0.014	0.003	78.6	0.003	78.6
Iron	mg/l	0.100	0.023	77	0.024	76
Manganese	mg/l	0.011	< 0.001	100	0.002	81.8
Mercury	mg/l	0.006	0.001	83.3	< 0.001	100
Sodium	mg/l	0.981	0.975	0.6	0.979	0.2
Nickel	mg/l	0.009	< 0.001	100	< 0.001	100
Lead	mg/l	0.010	< 0.001	100	< 0.001	100
Antimony	mg/l	0.005	0.001	80	< 0.001	100
Selenium	mg/l	0.011	0.001	90.9	< 0.001	100
Zinc	mg/l	0.010	0.009	10	0.006	40

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Table – 3 - Pesticides

Pesticides	Unit	Spiked sample conc.	Eco Pro	% Reduction	Eco pro Compact	% Reduction
Alachlor	mg/l	0.0286	0.0022	92.3	0.0022	92.3
Atrazine	mg/l	0.0355	0.0001	99.7	0.0081	77.2
Aldrin	mg/l	0.0293	0.0021	92.8	0.0105	64.2
Alpha HCH	mg/l	0.0303	0.0009	97.0	0.0092	69.6
Beta HCH	mg/l	0.0290	0.0025	91.4	0.0067	76.9
Butachlor	mg/l	0.0329	0.0022	93.3	0.0036	89.1
Chlorpyrifos	mg/l	0.0257	0.0056	78.2	0.0045	82.5
Delta HCH	mg/l	0.0260	0.0000	100.0	0.0027	89.6
2, 4, D	mg/l	0.0311	0.0039	87.5	0.0053	83.0
op DDE	mg/l	0.0256	0.0008	96.9	0.0009	96.5
pp DDE	mg/l	0.0257	0.0000	100.0	0.0001	99.6
pp DDD	mg/l	0.0279	0.0035	87.5	0.0015	94.6
pp DDT	mg/l	0.0277	0.0002	99.3	0.0000	100.0
op DDD	mg/l	0.0265	0.0021	92.1	0.0023	91.3
op DDT	mg/l	0.0266	0.0019	92.9	0.0022	91.7
Endosulphan Sulpahte	mg/l	0.0271	0.0000	100.0	0.0006	97.8
Alpha Endosulphan	mg/l	0.0274	0.0005	98.2	0.0009	96.7
Beta Endosulphan	mg/l	0.0247	0.0036	85.4	0.0004	98.4
Gamma HCH	mg/l	0.0248	0.0011	95.6	0.0098	60.5
Malathion	mg/l	0.0272	0.0023	91.5	0.0034	87.5
Methyl parathion	mg/l	0.0267	0.0026	90.3	0.0110	58.8
Monocrotophos	mg/l	0.0304	0.0000	100.0	0.0000	100.0
Phorate	mg/l	0.0285	0.0089	68.8	0.0085	70.2
Lindane	mg/l	0.0248	0.0011	95.6	0.0098	60.5
Heptachlor Epoxide	mg/l	0.0280	0.0000	100.0	0.0000	100.0
Dieldrin	mg/l	0.0319	0.0018	94.4	0.0019	94.0
Endrin	mg/l	0.0246	0.0000	100.0	0.0000	100.0
Parathion Ethyl	mg/l	0.0293	0.0106	63.8	0.0046	84.3
Heptachlor	mg/l	0.0316	0.0006	98.1	0.0008	97.5
Ethion	mg/l	0.0276	0.0085	69.2	0.0099	64.1
Paraoxon-Methyl	mg/l	0.0310	0.0008	97.4	0.0045	97.4
Phorate Sulphoxide	mg/l	0.028	0.007	75.0	0.010	64.3

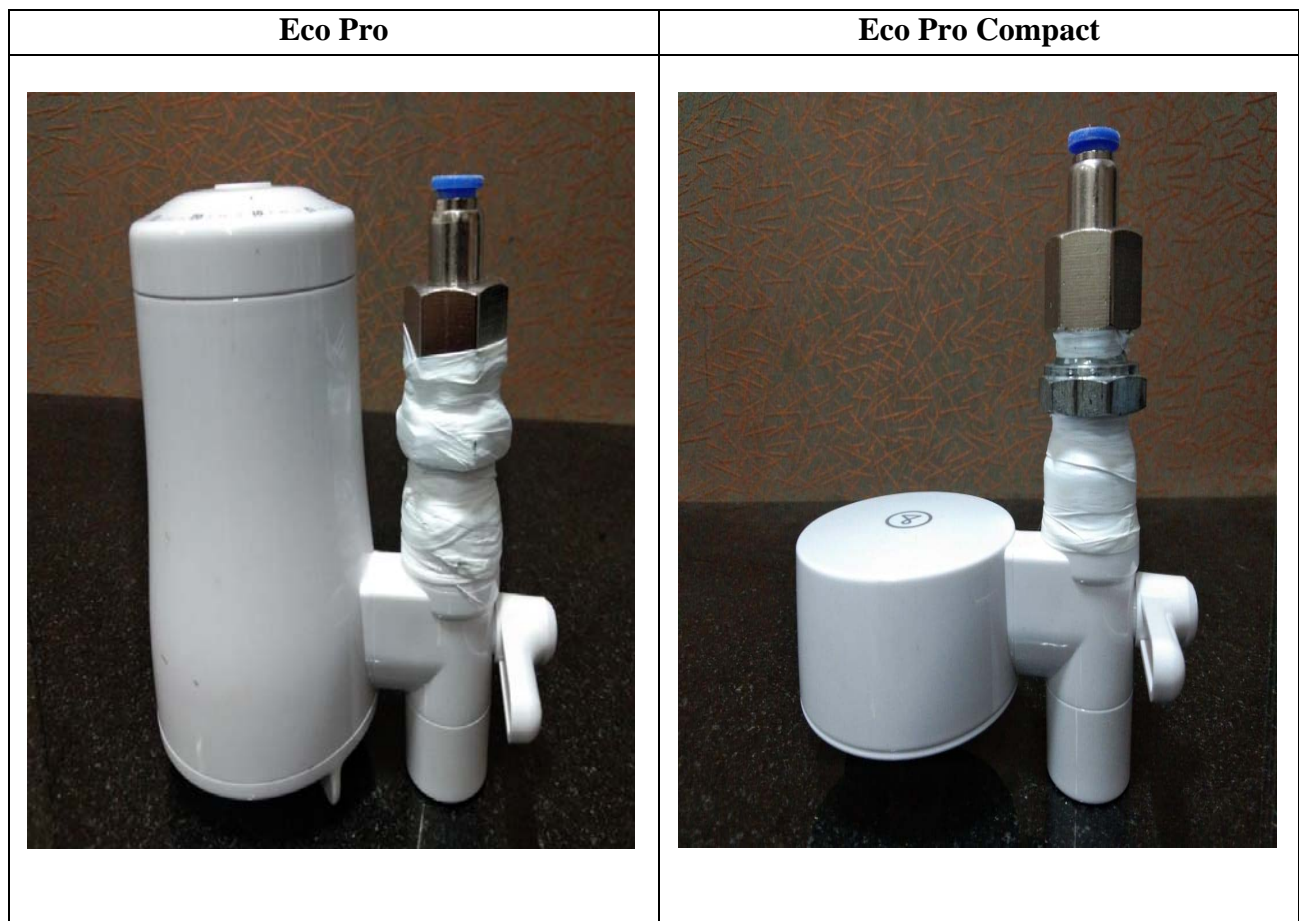
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Table – 4 - Microbiological parameters

Parameters	Unit	Spike Conc.	Eco Pro	% Reduction	Eco pro Compact	% Reduction
Total Bacterial Count	CFU/ml	6700	6400	4.5	6600	6.0
<i>Coliform</i>	CFU/ml	6000	5700	5.0	5900	8.3
<i>E. Coli/Faecal Coliform</i>	CFU/ml	4300	4400	2.3	4300	0.0
<i>Enterococcus faecalis</i>	CFU/ml	3100	3000	9.7	2800	16.1
<i>Clostridium perfringens</i>	CFU/ml	Present	Present	Absent	Satisfactory	Absent

4.3 Photographs:

Test Sample –



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5. Conclusion:

- 5.1** The concentration of the indicated substances in water entering the system was reduced to
 - 5.1.1** Physico chemical parameters Eco Pro – Average Reduction 36.1 %
Physico chemical parameters Eco Pro Compact – Average Reduction 34.2 %
 - 5.1.2** Pesticide Residues Eco Pro – Average Reduction – 91.4 %
Pesticide Residues Eco Pro Compact – Average Reduction – 85.3 %
 - 5.1.3** Heavy Metals Eco Pro – Average Reduction – 78.5 % except for sodium
Heavy Metals Eco Pro Compact – Average Reduction – 78.6 % except for sodium
 - 5.1.4** Microbiological reduction Eco Pro – Average – 5.4 %
Microbiological reduction Eco Pro Compact – Average – 7.6 %



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Note:

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