

Supplementary Table S1 Meteorological parameters during the PM_{2.5} and PM_{2.5-10} particle sample collection period over Amritsar and New Delhi

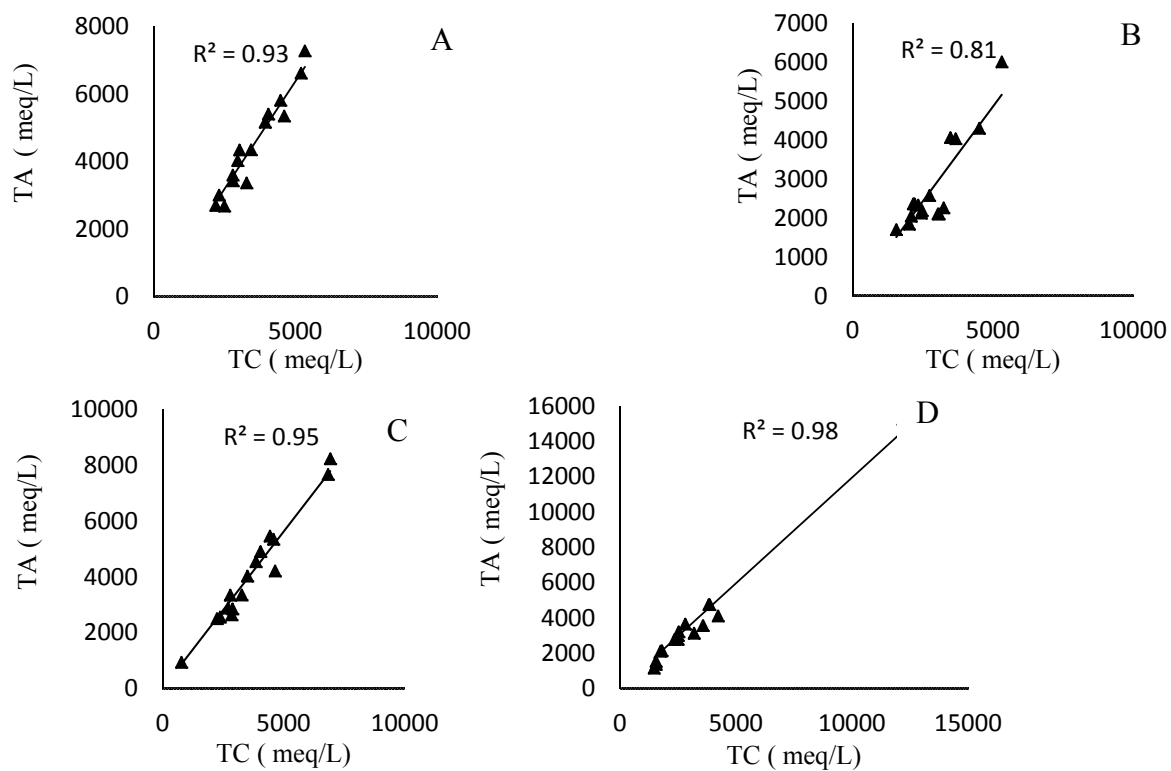
Amritsar																			
	Temperature (0C)			Dew Point (0C)			Humidity (%)			Sea Level Pressure (hPa)			Visibility (km)		Wind Speed (km/h)			Wind Direction	
	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Max	Mean	Min	Max	Mean	Degrees	
Min	2.0	12.0	8.0	1.0	6.00	4.0	30.0	87.0	66.0	1006.0	1009.0	1007.0	3.0	1.0	0.0	0.0	0.0	-1.0	
Max	11.00	25.0	18.0	10.0	16.0	12.0	94.0	100.0	99.0	1018.0	1022.0	1019.0	7.0	5.0	4.0	26.0	10.0	306.00	
Average	5.64	17.79	11.57	4.29	9.50	7.07	49.43	97.21	78.14	1014.00	1018.21	1015.93	4.64	2.93	1.21	12.71	3.50	188.20	
STD	3.23	3.33	2.71	3.07	2.85	2.64	16.75	4.92	8.65	3.78	4.14	3.65	1.39	1.33	1.42	6.51	3.08	129.28	
Delhi																			
Min	5.0	16.0	11.0	1.0	6.0	3.0	19.0	55.0	38.0	1004.0	1014.0	1012.0	0.00	1.0	0.0	10.0	2.0	34.0	
Max	14.0	25.0	19.0	11.0	14.0	13.0	82.0	100.0	93.0	1018.0	1021.0	1019.0	2.0	7.0	3.0	24.0	16.0	297.0	
Avera	8.06	19.75	13.44	3.41	10.06	7.44	39.50	95.50	73.31	1014.06	1018.56	1016.06	0.31	3.38	1.50	14.81	6.31	203.38	
STD	2.35	2.35	1.67	4.02	2.72	2.94	17.44	11.45	14.66	3.17	2.03	2.05	0.60	1.50	1.03	4.59	4.14	91.85	

Supplementary Table S2 Data quality information on samples and standards

Ions	F ⁻	Cl ⁻	NO ₃ ⁻	SO ₄ ²⁻	Na ⁺	NH ₄ ⁺	K ⁺	Ca ²⁺	Mg ²⁺
Multi-ion std*	1.00	2.50	5.00	5.00	1.00	1.00	1.00	1.00	1.00
R1	0.95	2.61	5.20	5.02	0.94	0.98	0.98	0.97	1.09
R2	1.01	2.60	5.19	5.12	1.01	1.04	0.98	1.02	1.00
R3	0.96	2.50	5.10	4.90	1.01	1.05	0.83	0.87	0.99
R4	1.01	2.70	5.50	5.30	1.16	0.84	0.86	1.18	1.03
R5	1.01	2.70	5.50	5.43	1.11	1.25	1.09	1.50	1.10
R6	1.01	2.72	5.55	5.31	0.93	0.92	1.07	0.97	1.02
AVG	0.99	2.64	5.34	5.18	1.03	1.01	0.97	1.09	1.04
STD	0.03	0.08	0.20	0.20	0.09	0.14	0.11	0.23	0.05
% RSD	2.88	3.20	3.70	3.87	8.94	13.81	10.96	20.94	4.45
% Accuracy	99.17	105.53	106.80	103.60	102.67	101.33	96.83	108.50	103.83
S1	0.23	5.64	12.42	28.79	1.34	9.58	3.82	27.07	1.95
S2	0.18	5.66	12.21	28.81	1.37	9.63	3.90	27.39	2.00
S3	0.15	5.61	12.10	28.26	3.13	9.58	4.08	27.55	2.10
S4	0.16	5.68	12.08	28.69	3.17	9.63	4.16	27.87	2.15
STD	0.03	0.03	0.16	0.26	1.04	0.03	0.16	0.33	0.09
AVER	0.18	5.65	12.20	28.64	2.25	9.60	3.99	27.47	2.05
% RSD	18.01	0.56	1.28	0.89	46.11	0.32	3.99	1.22	4.39

Metal	Al [ppm]	Ca [ppm]	Fe [ppm]	Ti [ppm]	Mn [ppm]	Ba [ppb]	Cd [ppb]	Co [ppb]	Cr [ppb]	Cu [ppb]	Pb [ppb]	Sr [ppb]	Zn [ppb]
BHVO-2*	358.0	408.5	431.5	81.5	6.5	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
R1	355.2	401.5	428.1	81.5	6.3	993.9	989.6	993.5	991.1	991.1	994.5	993.3	978.2
R2	350.1	406.4	400.7	83.2	6.4	929.4	938.1	990.8	989.1	990.6	997.2	935.6	912.1
R3	349.0	401.7	399.7	82.7	6.4	922.3	8.84.27	881.6	937.2	890.6	864.8	883.7	918.6
AVER	351.4	403.2	409.5	82.5	6.4	948.5	963.9	955.3	972.5	957.4	952.2	937.5	936.3
STD	3.3	2.8	16.1	0.9	0.1	39.4	36.5	63.8	30.6	57.9	75.7	54.8	36.4
%RSD	0.9	0.7	3.9	1.1	0.9	4.2	3.8	6.7	3.1	6.0	7.9	5.8	3.9
% Accuracy	98.2	98.7	94.9	101.2	98.6	94.9	96.4	95.5	97.2	95.7	95.2	93.8	93.6
S1	130.14	115.46	18.75	1.80	0.29	1212.00	3.80	49.80	437.38	102.38	390.50	570.23	562.25
S2	131.56	113.17	18.51	1.76	0.28	1209.00	4.80	49.10	437.95	102.29	539.50	563.56	566.77
S3	129.36	112.62	18.48	1.78	0.29	1198.00	3.90	47.80	435.38	99.68	498.25	568.26	567.66
STD	1.12	1.51	0.15	0.02	0.00	7.37	0.55	1.01	1.35	1.53	76.93	3.43	2.90
AVER	130.35	113.75	18.58	1.78	0.29	1206.33	4.17	48.90	436.90	101.45	476.08	567.35	565.56
%RSD	0.86	1.32	0.80	1.12	1.32	0.61	13.22	2.08	0.31	1.51	16.16	0.60	0.51

*True value of Multi ion standard procured from E-Merck, Germany and BHVO-2 procured from United States Geological Survey; R1, R2.... = repeat analysis; S1, S2.. = repeat analysis of sample; AVG = average; STD = Standard Deviation; %RSD, Percent relative standard deviation; % accuracy = (True value- observed value)*100



Supplementary Fig. S1 Correlation between different ions of Σ Cations (TC) and Σ Anion (TA) over Amritsar (A- PM_{2.5}; B- PM_{2.5-10}) and New Delhi (C-PM_{2.5}; D- PM_{2.5-10})