Table S1: PRILE 2021 checklist

Checklist of items to be included when reporting laboratory studies in Endodontology*

Section/ Topic	Item Number	Checklist Items	Reported on page number
Title	1a	The Title must identify the study as being laboratory-based, e.g. "laboratory investigation" or "*in vitro*," or "*ex vivo*" or another appropriate term	1
	1b	The area/field of interest must be provided (briefly) in the Title	1
Keywords	2a	At least two keywords related to the subject and content of the investigation must be provided	1
Abstract	3a	The rationale/justification of what the investigation contributes to the literature and/or addresses a gap in knowledge must be provided	1
	3b	The aim/objectives of the investigation must be provided	1
	3c	The body of the Abstract must describe the materials and methods used in the investigation and include information on data management and statistical analysis	1
	3d	The body of the Abstract must describe the most significant scientific results for all experimental and control groups	1
	3e	The main conclusion(s) of the study must be provided	1
Introduction	4a	A background summary of the scientific investigation with relevant information must be provided	1-2
	4b	The aim(s), purpose(s) or hypothesis(es) of an investigation must be provided ensuring they align with the methods and results	2
Materials and Methods	5a	A clear ethics statement and the ethical approval granted by an ethics board, such as an Institutional Review Board or Institutional Animal Care and Use Committee, must be described	15
	5b	When harvesting cells and tissues for research, all the legal, ethical, and welfare rights of human subjects and animal donors must be respected and applicable procedures described	15
	5c	The use of reference samples must be included, as well as negative and positive control samples, and the adequacy of the sample size justified	2-5
	5d	Sufficient information about the methods/materials/supplies/samples/specimens/instruments used in the study must be provided to enable it to be replicated	4
	5e	The use of categories must be defined, reliable and be described in detail	4
	5f	The numbers of replicated identical samples must be described within each test group. The number of times each test was repeated must be described	4-5
	5g	The details of all the sterilization, disinfection, and handling conditions must be provided, if relevant	Not applicable
	5h	The process of randomization and allocation concealment, including who generated the random allocation sequence, who decided on which specimens to be included and who assigned specimens to the intervention must be provided(if applicable)	Not applicable
	5i	The process of blinding the operator who is conducting the experiment (if applicable) and the examiners when assessing the results must be provided	Not applicable

	5j	Information on data management and analysis including the statistical tests and software used must be provided	4
Results	6a	The estimated effect size and its precision for all the objective (primary and secondary) for each group including controls must be provided	5-11
	6b	Information on the loss of samples during experimentation and the reasons must be provided, if relevant	Not applicable
	6c	All the statistical results, including all comparisons between groups must be provided	5-11
Discussion	7a	The relevant literature and status of the hypothesis must be described	14
	7b	The true significance of the investigation must be described	11, 12, 14
	7c	The strength(s) of the study must be described	11, 12, 14
	7d	The limitations of the study must be described	13, 14
	7e	The implications for future research must be described	14
Conclusion(s)	8a	The rationale for the conclusion(s) must be provided	14
	8b	Explicit conclusion(s) must be provided, i.e. the main "take-away" lessons	14
Funding and support	9a	Sources of funding and other support (such as supply of drugs, equipment) as well as the role of funders must be acknowledged and described	15
Conflicts of interest	10a	An explicit statement on conflicts of interest must be provided	15
Quality of images	11a	Details of the relevant equipment, software and settings used to acquire the image(s) must be described in the text or legend	Not applicable
	11b	If an image(s) is included in the manuscript, the reason why the image(s) was acquired and why it is included must be provided in the text	Not applicable
	11c	The circumstances (conditions) under which the image(s) were viewed and evaluated must be provided in the text	Not applicable
	11d	The resolution and any magnification of the image(s) or any modifications/ enhancements (e.g. brightness, image smoothing, staining etc.) that were carried out must be described in the text or legend	Not applicable
	11e	An interpretation of the findings (meaning and implications) from the image (s) must be provided in the text	Not applicable
	11f	The legend associated with each image must describe clearly what the subject is and what specific feature(s) it illustrates	Not applicable
	11g	Markers/labels must be used to identify the key information in the image(s) and defined in the legend	Not applicable
	11h	If relevant, the legend of each image must include an explanation whether it is pre-experiment, intra-experiment or post-experiment and, if relevant, how images over time were standardised	Not applicable

***From: Nagendrababu V, Murray PE, Ordinola-Zapata R, Peters OA, Rôças IN, Siqueira JF Jr, Priya E, Jayaraman J, Pulikkotil SJ, Camilleri J, Boutsioukis C, Rossi-Fedele G, Dummer PMH (2021) PRILE 2021 guidelines for reporting laboratory studies in Endodontology: a consensus-based development. *International Endodontic Journal* May 3. doi: 10.1111/iej.13542. https://onlinelibrary.wiley.com/doi/abs/10.1111/iej.13542**

For further details visit: http://pride-endodonticguidelines.org/prile

Table S2. pH in different samples over a 28-day storage period.

Day	3	5	7	10	12	14	17	19	21	24	26	28
F	10.6 (0.19)^{a}	10.6 (0.24)^{a}	10.6 (0.20)^{a}	10.4 (0.16)^{a}	10.5 (0.02)^{a}	10.6 (0.14)^{a}	10.4 (0.11)^{a}	10.3 (0.26)^{a}	10.5 (0.20)^{a}	10.6 (0.11)^{a}	10.6 (0.07)^{a}	10.5 (0.21)^{a}
HP	10.2 (0.05)^{a}	10.1 (0.24)^{a}	10.0 (0.23)^{a}	9.4 (0.37)^{a}	9.8 (0.04)^{ab}	9.9 (0.13)^{a}	9.8 (0.08)^{a}	9.8 (0.02)^{a}	9.9 (0.23)^{a}	9.8 (0.10)^{a}	9.8 (0.01)^{a}	9.7 (0.01)^{b}
BG	9.6 (0.07)^{a}	9.6 (0.10)^{a}	9.4 (0.02)^{a}	9.2 (0.06)^{a}	9.3 (0.04)^{b}	9.3 (0.01)^{a}	9.2 (0.02)^{a}	9.2 (0.01)^{b}	9.2 (0.04)^{a}	9.2 (0.01)^{a}	9.1 (0.05)^{a}	9.1 (0.01)^{c}
NC	7.9 (0.08)^{a}	7.9 (0.08)^{a}	8.0 (0.11)^{a}	7.9 (0.17)^{a}	8.2 (0.06)^{b}	8.1 (0.18)^{a}	8.0 (0.20)^{a}	8.1 (0.11)^{ab}	8.3 (0.23)^{a}	8.6 (0.27)^{a}	8.4 (0.08)^{a}	8.3 (0.16)^{bc}

Values are expressed as mean (standard deviation). F: MTA Flow White; HP: MTA Repair HP; BG: Nishika Canal Sealer BG multi; NC: negative control (deionized water). Values with different superscript letters ($^{a, b, c}$) within the same column indicate statistically significant differences between the materials at that specific time point ($p < 0.05$).

Table S3. Concentrations of calcium ion (ppm) in different samples over a 28-day storage period.

Day	3	5	7	10	12	14	17	19	21	24	26	28
F	600.0 (56.6)^{a}	480.0 (0.0)^{a}	360.0 (56.6)^{a}	480.0 (0.0)^{a}	600.0 (56.6)^{a}	480.0 (113.1)^{a}	400.0 (0.0)^{a}	360.0 (56.6)^{a}	350.0 (70.7)^{a}	260.0 (70.7)^{a}	245.0 (63.6)^{a}	220.0 (28.3)^{a}
HP	44.0 (5.7)^{b}	42.5 (3.5)^{b}	41.5 (7.8)^{a}	45.0 (1.4)^{b}	46.5 (3.5)^{b}	39.0 (9.9)^{a}	41.0 (4.2)^{b}	41.0 (4.2)^{a}	43.5 (2.1)^{a}	43.0 (1.4)^{a}	40.5 (3.5)^{a}	41.0 (4.2)^{a}
BG	108.5 (0.7)^{c}	106.0 (1.4)^{c}	91.0 (7.1)^{a}	90.0 (7.1)^{b}	82.5 (6.4)^{b}	76.0 (17.0)^{a}	71.0 (14.1)^{ab}	63.5 (2.1)^{a}	65.5 (3.5)^{a}	64.5 (3.5)^{ab}	62.0 (1.4)^{a}	61.0 (1.4)^{a}
NC	0.0 (0.0)^{d}	0.0 (0.0)^{d}	0.0 (0.0)^{b}	0.0 (0.0)^{c}	0.0 (0.0)^{c}	0.0 (0.0)^{a}	0.0 (0.0)^{c}	0.0 (0.0)^{b}	0.0 (0.0)^{a}	0.0 (0.0)^{c}	0.0 (0.0)^{b}	0.0 (0.0)^{b}

Values are expressed as mean (standard deviation). F: MTA Flow White; HP: MTA Repair HP; BG: Nishika Canal Sealer BG multi; NC: negative control (deionized water); ppm: parts per million. Values with different superscript letters ($^{a, b, c}$) within the same column indicate statistically significant differences between the materials at that specific time point ($p < 0.05$).

Table S4. Mass change (%) of the tested materials after 28 days of immersion.

Material	Sample 1	Sample 2	Mean (SD)
F	-20.2	-18.4	-19.3 (1.3)
HP	-6.7	-5.8	-6.3 (0.6)
BG	-16.1	-16.4	-16.4 (0.2)

F: MTA Flow White; HP: MTA Repair HP; BG: Nishika Canal Sealer BG multi. No statistically significant differences were observed between the groups

Table S5. Time-dependent pH changes of BG at different consistencies over 28 days.

Day	3	5	7	10	12	14	17	19	21	24	26	28
BG0	9.3 (0.05)^{a}	9.3 (0.06)^{a}	9.2 (0.07)^{a}	9.2 (0.07)^{a}	9.2 (0.07)^{a}	9.1 (0.12)^{a}	9.1 (0.12)^{a}	9.0 (0.12)^{a}	9.1 (0.08)^{a}	9.1 (0.03)^{a}	9.1 (0.09)^{a}	9.1 (0.08)^{a}
BG1	9.3 (0.06)^{a}	9.2 (0.06)^{a}	9.2 (0.04)^{a}	9.2 (0.05)^{a}	9.2 (0.04)^{a}	9.2 (0.02)^{a}	9.2 (0.02)^{a}	9.1 (0.01)^{a}	9.2 (0.01)^{a}	9.2 (0.05)^{a}	9.1 (0.04)^{a}	9.1 (0.01)^{a}
BG2	9.4 (0.05)^{a}	9.4 (0.05)^{b}	9.3 (0.03)^{a}	9.3 (0.10)^{a}	9.3 (0.09)^{a}	9.4 (0.08)^{b}	9.3 (0.04)^{b}	9.3 (0.06)^{b}	9.3 (0.04)^{b}	9.2 (0.03)^{a}	9.2 (0.06)^{a}	9.2 (0.03)^{a}
NC	8.4 (0.12)^{b}	8.6 (0.12)^{c}	8.7 (0.10)^{b}	8.5 (0.03)^{b}	8.5 (0.09)^{b}	8.3 (0.16)^{c}	8.6 (0.11)^{c}	8.6 (0.03)^{c}	8.6 (0.06)^{c}	8.6 (0.09)^{b}	8.7 (0.10)^{b}	8.6 (0.03)^{b}

Values are expressed as mean (standard deviation). BG0, BG1, and BG2: Nishika Canal Sealer BG multi mixed in three different consistencies—BG0 (no powder added), BG1 (0.03 g powder per 0.09 g paste), and BG2 (0.06 g powder per 0.09 g paste); NC:

negative control (deionized water). Values with different superscript letters ($^{a, b, c}$) within the same column indicate statistically significant differences between the groups at that specific time point ($p < 0.05$).

Table S6. Calcium ion release (ppm) from BG at different consistencies over 28 days.

Day	3	5	7	10	12	14	17	19	21	24	26	28
BG0	140.0 (10.0)^{a}	130.0 (0.0)^{a}	116.7 (11.5)^{a}	101.3 (8.1)^{a}	94.0 (9.5)^{a}	90.3 (9.0)^{a}	93.0 (7.5)^{a}	88.3 (5.5)^{a}	83.3 (5.5)^{a}	78.7 (11.5)^{a}	76.7 (9.3)^{a}	72.0 (8.7)^{a}
BG1	136.7 (5.8)^{a}	130.0 (0.0)^{a}	123.3 (5.8)^{a}	101.7 (7.6)^{a}	95.3 (6.4)^{a}	94.3 (8.1)^{a}	91.7 (6.1)^{a}	92.0 (7.0)^{a}	86.7 (8.0)^{a}	83.7 (8.4)^{a}	80.0 (9.6)^{a}	76.0 (7.0)^{a}
BG2	140.0 (0.0)^{a}	140.0 (0.0)^{a}	120.0 (10.0)^{a}	107.0 (14.7)^{a}	98.3 (12.6)^{a}	98.7 (12.1)^{a}	102.3 (16.6)^{a}	98.0 (13.1)^{a}	93.7 (9.3)^{a}	90.0 (7.8)^{a}	89.0 (11.1)^{a}	82.3 (10.8)^{a}
NC	0.0 (0.0)^{b}	0.0 (0.0)^{b}	0.0 (0.0)^{b}	0.0 (0.0)^{b}	0.0 (0.0)^{b}	0.0 (0.0)^{b}	0.0 (0.0)^{b}	0.0 (0.0)^{b}	0.0 (0.0)^{b}	0.0 (0.0)^{b}	0.0 (0.0)^{b}	0.0 (0.0)^{b}

Values are expressed as mean (standard deviation). BG0, BG1, and BG2: Nishika Canal Sealer BG multi mixed in three different consistencies—BG0 (no powder added), BG1 (0.03 g powder per 0.09 g paste), and BG2 (0.06 g powder per 0.09 g paste); NC: negative control (deionized water); ppm: parts per million. Values with different superscript letters ($^{a, b}$) within the same column indicate statistically significant differences between the groupss at that specific time point ($p < 0.05$).

Table S7. Water sorption (%) of F and BG prepared at different consistencies after 28 days of immersion.

Material	Sample 1	Sample 2	Sample 3	Mean (SD)
F0	104.0	90.0	67.6	87.2 (18.3)
F1	80.3	-0.4	33.1	37.3 (40.6)
F2	-10.7	0.5	-25.8	-12.0 (13.2)
Material	**Sample 1**	**Sample 2**		**Mean (SD)**
BG0	17.2	47.7		32.5 (21.6)
BG1	31.7	-4.7		13.5 (25.8)
BG2	-35.5	-46.9		-41.2 (8.1)

F0, F1, and F2: MTA Flow White mixed in three different consistencies—F0 (0.19 g powder per 0.12 g liquid), F1 (0.26 g powder per 0.12 g liquid), and F2 (0.19 g powder per 0.04 g liquid); BG0, BG1, and BG2: Nishika Canal Sealer BG multi mixed in three different consistencies—BG0 (no powder added), BG1 (0.03 g powder per 0.09 g paste), and BG2 (0.06 g powder per 0.09 g paste). No significant differences among the F groups ($p = 0.06$) or the BG groups ($p = 0.15$).