

Supplementary Table 1. Villus heights in a series of studies

Region of GI tract	Villus height (µm)	References
Duodenum		
Qingyuan partridge chickens (broilers)	926	Yin et al., 2019
Broilers 7 d	856	Santin et al., 2001
Broilers 28 d	1356	Santin et al., 2001
Broilers 42 d	1370	Santin et al., 2001
Broilers 35 d	1640	Awad et al., 2008
Broilers	1715	Munoz et al., 2023
Broilers	1789	Munoz et al., 2023
Broilers	1271	Cheng et al., 2020
Broilers	1667	Awad et al., 2006
Broilers	1640	Koltes et al., 2017
Broilers	1020	Tufarelli et al., 2022
Pullets 16 d	1433	Sharma et al., 2022
Pullets	1193	Rebollada-Merino et al., 2019
♀ adult	1827	Sharma et al., 2024
Jejunum		
Broilers	954	Stefanetti et al., 2023
Broilers	1246	Barekatain et al., 2019
Broilers	1064	Awad et al., 2006
Broilers	889	Awad et al., 2015
Broilers	876	Awad et al., 2022
Broilers	1271	Cheng et al., 2020
Broilers 7 d	392	Santin et al., 2001
Broilers 28 d	1124	Santin et al., 2001
28 d	721	Yin et al., 2019
Broilers 42 d	1013	Santin et al., 2001
Qingyuan partridge chickens (broilers) 14 d	575	Yin et al., 2019
42 d	823	Yin et al., 2019
Pullets 16 d	829	Sharma et al., 2022
Ileum		
Broilers	614	Awad et al., 2009
Broilers	541	Xu et al., 2003
Broilers 7 d	325	Santin et al., 2001
Broilers 28 d	730	Santin et al., 2001
Broilers 42 d	816	Santin et al., 2001
Broilers	900	Wu et al., 2018
Broilers	451	Munoz et al., 2023
Broilers	500	Munoz et al., 2023
Broilers 21 d	914	Berrocoso et al., 2017
Qingyuan partridge chickens (broilers) 14 d	416	Yin et al., 2019
Qingyuan partridge chickens 28 d	548	Yin et al., 2019
Qingyuan partridge chickens 42 d	586	Yin et al., 2019
Pullets 16 d	585	Sharma et al., 2022
♀ adult	630	Deng et al., 2012
♀ adult	615	Deng et al., 2012
♀ adult	686	Sharma et al., 2024

Supplementary Table 2. Villus heights of supplemented birds in a series of studies

	Control	Supplement	Bird type	Reference
Villus height (µm)				
Duodenum				
synbiotic	1640	1647	Broilers 35 d	Awad et al., 2008
<i>Saccharomyces cerevisiae</i> cell wall	856a	1040b	Broilers 7 d	Santin et al., 2001
	1356	1346	Broilers 28 d	
	1370	1271	Broilers 42 d	
fermented defatted <i>alperujo</i> olives	1193	1335	Pullets	Rebollada-Merino et al., 2019
yupingfeng poly-saccharides 14 d	926 a	717 b	Qingyuan partridge chickens (broilers)	Yin et al., 2019
28 d	1098	1019		
42 d	1101	949		
Jejunum				
<i>Saccharomyces cerevisiae</i> cell wall	392 a	496 b	Broilers 7 d	Santin et al., 2001
	1124	1166	Broilers 28 d	
	1013	1077	Broilers 42 d	
yupingfeng poly-saccharides 14 d	575 a	505 b	Qingyuan partridge chickens (broilers)	Yin et al., 2019
28 d	721	722		
42 d	823	863		
Ileum				
synbiotic	614 a	774 b	Broilers 35 d	Awad et al., 2008
<i>Saccharomyces cerevisiae</i> cell wall	325 a	422 b	Broilers 7 d	Santin et al., 2001
	730	810	Broilers 28 d	
	816	813	Broilers 42 d	
yupingfeng poly-saccharides 14 d	416	569	Qingyuan partridge chickens (broilers)	Yin et al., 2019
28 d	548	631		
42 d	586	599		
Ceca				
<i>Eimeria tenella</i>	135	64.9	Males of layer line	Zhou et al., 2020
Crypt depth (µm)				
Duodenum				
synbiotic	149	149	Broilers 35 d	Awad et al., 2008
<i>Saccharomyces cerevisiae</i> cell wall	55	61	Broilers 7 d	Santin et al., 2001
	58 a	39 b	Broilers 28 d	
	42	53	Broilers 42 d	
Jejunum				
<i>Saccharomyces cerevisiae</i> cell wall	77	80	Broilers 7 d	Santin et al., 2001
	62	70	Broilers 28 d	
	42	53	Broilers 42 d	
<i>Callicarpa nudiflora</i> aqueous extract			Broilers 21 d	Liu et al., 2024
			Broilers 42 d	Liu et al., 2024
Ileum				
synbiotic	128 a	117 b	Broilers 35 d	Awad et al., 2008
<i>Saccharomyces cerevisiae</i> cell wall	42	53	Broilers 7 d	Santin et al., 2001
	48	48	Broilers 28 d	
	68	64	Broilers 42 d	