

**Table S2 Composition and skewness of 20 species of mtgenomes in the Bibionomorpha.**

Superfamily	Species	A%	T%	G%	C%	A+T%	AT-Skew	GC-Skew
Bibionoidea	<i>Penthetria simplioipes</i>	40.20	39.40	8.00	12.30	79.60	0.0101	-0.2118
	<i>Piecia hardyi</i>	40.00	39.90	8.20	11.80	79.90	0.0013	-0.1800
	<i>Cramptonomyia spenceri</i>	38.90	37.20	9.10	14.80	76.10	0.0223	-0.2385
Anisopodoidea	<i>Sylvicola fenestralis</i>	37.90	38.40	10.10	13.50	76.30	-0.0066	-0.1441
Scatopsoidea	<i>Coboldia fuscipes</i>	39.50	36.70	9.50	14.30	76.20	0.0380	-0.1990
Sciaroidea	<i>Mayetiola destructor</i>	44.60	39.50	7.10	8.80	84.10	0.0606	-0.1069
	<i>Orseolia oryzae</i>	47.40	38.30	6.20	8.10	85.70	0.1062	-0.1329
	<i>Rhopalomyia pomum</i>	44.60	40.60	6.50	8.30	85.20	0.0469	-0.1216
	<i>Sciara ruficauda</i>	40.10	38.80	8.70	12.40	78.90	0.0165	-0.1754
	<i>Pseudolycoriella</i> sp.	39.10	39.90	9.30	11.60	79.00	-0.0101	-0.1100
	<i>Pnyxia scabiei</i>	41.40	35.80	7.70	15.10	77.20	0.0725	-0.3246
	<i>Trichosia lengersdorfi</i>	40.90	38.50	8.00	12.60	79.40	0.0302	-0.2233
	<i>Neoempheria proxima</i>	39.90	38.80	8.80	12.40	78.70	0.0140	-0.1698
	<i>Epicypta</i> sp.	38.60	40.80	9.10	11.10	79.40	-0.0280	-0.1020
	<i>Epicypta xiphothorna</i>	38.70	39.90	8.90	12.40	78.70	-0.0152	-0.1643
	<i>Azana</i> sp.	42.50	37.70	7.10	12.70	80.20	0.0501	-0.2828
	<i>Acnemia nitidicollis</i>	42.20	38.30	7.80	11.80	80.50	0.0484	-0.2041
	<i>Allodia</i> sp.	38.00	37.80	10.30	13.90	75.90	0.0026	-0.1488
	<i>Allodia anglofennica</i>	38.30	37.80	10.10	13.90	76.00	0.0066	-0.1583
	<i>Arachnocampa flava</i>	39.60	42.40	7.30	10.60	82.00	-0.0341	-0.1843