

Enami Kazuyuki,
Okada Yoshihiro,
Sato Satoru, Xu
Xiaoji

Scientific Study of Paper Used for Pictorial Books
and Ukiyoe Pictures Published during the
Premodern Edo-Era from the 17th to 19th
Centuries in Japan

After the long-lasting Sengoku period (warring states period) of the 16th century, Japan re-entered a peaceful state from the mid-17th to mid-19th centuries under the pre-modern feudal system, without waging war against any foreign countries. As peace prevailed, people from the new citizen class started a new economic system based on the commodity market, and this spread widely throughout Japan. They, and others – merchants, artisans, wealthier farmers and even “ordinary” citizens – began to crave for knowledge of varying subjects, to learn about their own country, and to find their own cultural identity. To meet their demands, book publishing became big business in the big cities, first in Kamigata (Kyoto, Osaka), then Edo and finally Nagoya. During the 200 years, 300,000 to 500,000 printed books were published with a minimum of 300 to 1000 copies per book, that is, a sum total of 100 million or more copies had been printed and sold. In addition, over 200 million sheets of full colour Pop art, Ukiyoe of various artists, had also been printed and sold.

In the present study analysis of paper used for picture books (around 100 items) and Ukiyoe (over 100 works) using Keyence VHX 5000 high resolution digital microscope was made, by observing and analyzing the morphology of paper, microstructure of fibres, and identifying plants used for paper making.

It was found that paper used for picture books was made from Kozo paper mixed with Mitsumata fibres and/or rice straw fibres, with a certain amount of rice powder (not glue but starch) used as a filler. For Ukiyoe pictures, Kozo paper mixed with Mitsumata fibres (no rice straw fibre was found) and filled with a rich amount of rice powder (as above) was used. Authors, artists and publishers chose not any commonly available paper but suitably-prepared sheets for use on books with fine illustrations and beautifully-prepared paper densely filled with rice powder for full colour Ukiyoe, to give the citizens full enjoyment.

Key words: Picture book, Ukiyoe, Kozo, Mitsumata, Rice straw, Rice starch